

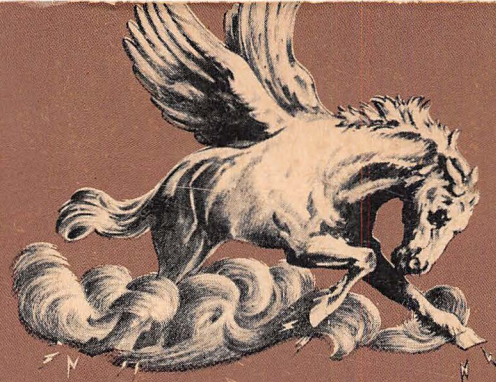
# FALL 1967

(FOR SEPTEMBER, OCTOBER AND NOVEMBER)  
Next issue December 1, 1967

radio amateur

# callbook

magazine



United States Listings



Photo courtesy Pospeshil Card Service

## ARBOR LODGE, NEBRASKA CITY, NEBRASKA

The historic home of the founder of Arbor Day, J. Sterling Morton (1832-1902). Arbor Day is the planting of trees, a Springtime tradition observed in most states. The Morton mansion, in Arbor Lodge State Park, has become a memorial and visitors are welcome to go through its 53 rooms and tour the beautiful grounds surrounding the Lodge. The State of Nebraska is celebrating its centennial this year, having become the 37th state in 1867. Over the years, in addition to its agricultural growth, the "Beef State" is now the world's largest livestock market and meatpacking center. Nebraska, "where the West begins", has a cattle population of over six million head in its 77,000 square miles. There are about 2,200 licensed radio amateurs in Nebraska.

The only publications listing licensed radio amateurs throughout the world.....Since 1920

## in this issue

- 5,505 new licenses issued by FCC since the Summer 1967 issue.
- Over 25,000 changes in listings.
- 288,892 licensed radio amateurs in the U.S.A.
- Radio Amateur prefixes of the world, with map, A.R.R.L. countries list.
- Great circle bearings, postal information, standard time charts, codes, "Q" signals . . . and many other features.
- QSL MANAGERS AROUND THE WORLD.
- STOP PRESS - late QTH's.
- Class of license on each call.

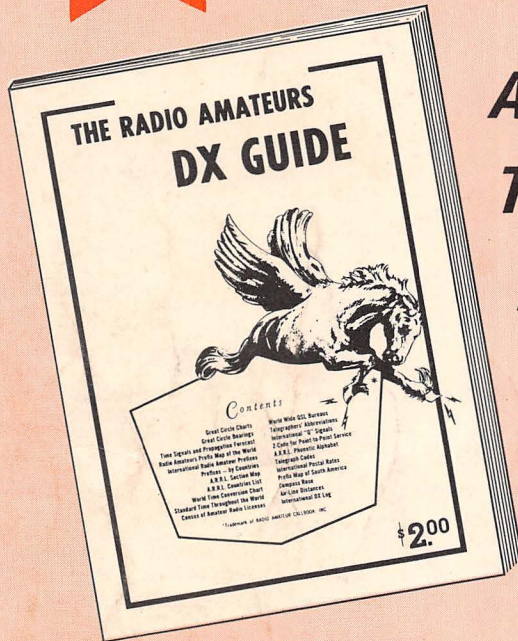
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9th  
EDITION

# RADIO AMATEURS

# DX GUIDE



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TO  
YOUR  
DXing Pleasure!**

**\$2.00**

64 pages, size 8 3/4" x 12"

The DX Guide is a handy reference manual containing valuable information for every radio amateur — especially the DXers.

## JUST LOOK AT THIS TABLE OF CONTENTS

**INTERNATIONAL DX LOG** — prefixes of all countries that qualify for DXCC. Ample space provided to make a permanent record of all DX stations worked; showing date, call letters, frequency and whether a QSL card has been sent or received.

**WORLD MAP SHOWING RADIO AMATEUR PREFIXES** — an outstanding map, 15" x 10".

**GREAT CIRCLE MAPS** — centered on New York City, San Francisco, Calif., Seattle, Wash., Washington, D.C., and the center of the United States.

**GREAT CIRCLE OUTLINE CHART OF THE UNITED STATES** — determine the great circle bearing between any two points in the United States with this map.

**PREFIX MAP OF SOUTH AMERICA** — showing the number or letter designating all sections and countries.

**ARRL SECTION MAP** — of the U.S., check off the sections you have worked during ARRL contests.

**GREAT CIRCLE BEARING TABLES** — each printed on a separate page for easy removal of the one nearest your location. 293 bearings are shown to the nearest degree on each table for: Atlanta, Ga., Boston, Mass., Buffalo, N.Y., Chicago, Ill., Columbus, Ohio, Denver, Colo., Detroit, Mich., Houston, Texas, Jacksonville, Fla., Kansas City, Mo., Knoxville, Tenn., Los Angeles, Calif., Louisville, Ky., Miami, Fla., Minneapolis, Minn., New Orleans, La., New York City, Norfolk, Va., San Francisco, Calif., Seattle, Wash., Washington, D.C., and the geographical center of the United States.

**GREAT CIRCLE BEARINGS IN THE UNITED STATES** — between 39 large cities in the U.S.A., — a valuable aid for VHF work as well as handling traffic through QRM.

**GREAT CIRCLE BEARINGS TO WORLD WIDE METROPOLITAN AREAS** — exact bearings to the nearest degree from 39

cities in the U.S.A., to 39 metropolitan areas throughout the world.

**TIME CONVERSION TABLE** — determine the time in any time zone in the world. Also know whether it is today or tomorrow at the place heard or worked.

**TIME THROUGHOUT THE WORLD** — time zones of most countries. Explains the International Time Zone System.

**AIR LINE DISTANCES IN THE UNITED STATES** — arranged in alphabetical order between 39 cities of the United States.

**POSTAL INFORMATION** — rates for QSL cards, first class and airmail letters to foreign countries. Also the number of international reply coupons for the proper postage for a return airmail letter is shown for most countries.

**ARRL COUNTRIES LIST** — official list of ARRL DX contest and DXCC. Courtesy ARRL.

**DX CONTEST AND FIELD DAY LOG** — can be used either for a DX contest or the annual ARRL field day.

**COMPASS ROSE** — for that rotary beam indicator, graduated for 360 degrees. One with white background and no print on the reverse side of the sheet. The other has a black background.

**PLUS THESE INTERESTING FEATURES** — INTERNATIONAL "Q" SIGNALS; WORLD WIDE QSL BUREAUS; "Z" CODE FOR POINT TO POINT SERVICE; "Q" SIGNALS AND ARRL PHONETIC ALPHABET; TELEGRAPHERS ABBREVIATIONS; DX OPERATING CODE; MORSE CODE.

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# NEW

## DX

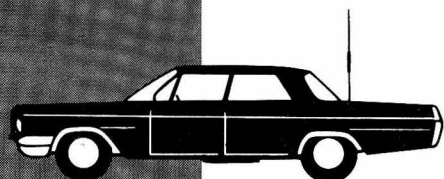
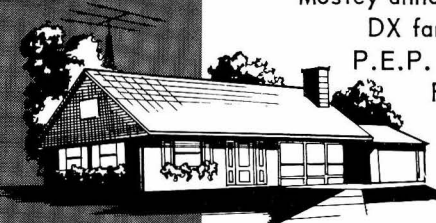
## Beam

## and

## Mobile Antenna

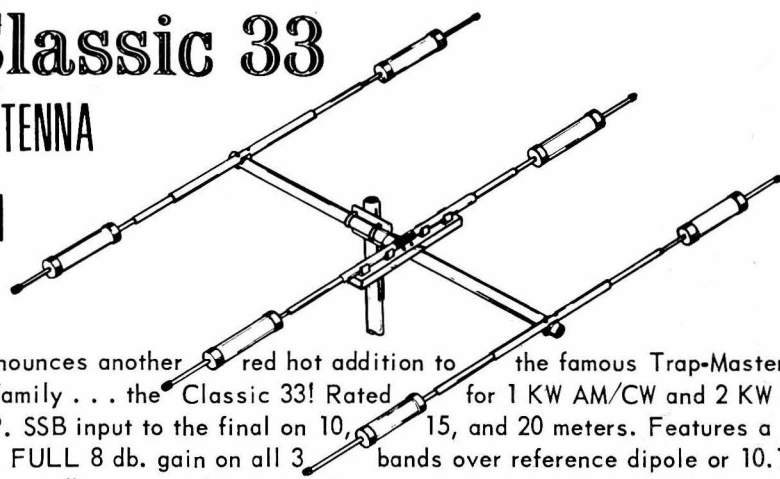
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for 10, 15, and  
20 meters



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\* (Pat. Pend.)



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## RADIO AMATEURS OF THE U. S. A.

 VOLUME 45  
NUMBER 3

ALL K AND W CALLS

FALL 1967

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Includes the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.		Includes the State of California.	
SECOND CALL AREA	45	SEVENTH CALL AREA	385
Includes the States of New Jersey and New York.		Includes the States of Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming.	
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FIFTH CALL AREA	254	TENTH CALL AREA	545
Includes the States of Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.		Includes the States of Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.	
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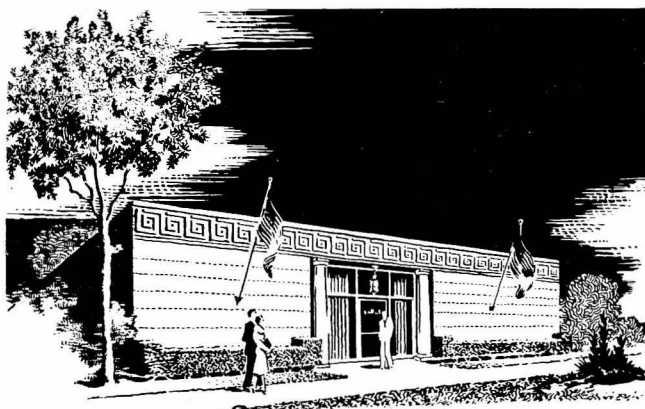
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A year around staff, through the use of electronic data processing equipment, evaluates and compiles the directory information received daily from all over the world. Extensive library and historical records are maintained to provide the most complete and accurate Callbook possible to produce.

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## Collector's Item

It's a mobile transceiver *and* a fixed station. It reaches out — SSB and CW — to collect QSL's. The KWM-2 lets you work all the 80- to 10-meter amateur bands. Like all Collins equipment, the KWM-2 is designed for system use. Put a 62S-1 VHF Converter on the table next to a KWM-2 and you are up on the 6- and 2-meter bands. Add a 30L-1 Linear Amplifier to the system for a full-powered fixed station. That's only part of the KWM-2 story. Ask your Collins distributor about the rest.





# PREFIXES—BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Asia, AF—Africa, E—Europe, NA—North America, O—Oceania, SA—South America.

Aden (South Arabia).....(A-21).....VS9  
Afghanistan.....(A-21).....YA  
Aland Is. ....(E-15).....OH0  
Alaska.....(NA-1).....KL7  
Albania.....(E-15).....ZA  
Algeria.....(AF-33).....7X  
Amsterdam & St. Paul Is. ....(AF-39).....FB8  
Andaman & Nicobar Is. ....(A-26).....VU5  
Andorra.....(E-14).....PX1  
Angola.....(AF-36).....CR6  
Antarctica.....CE9AA-AM, FB8Y, KC4AA,  
KC4US, LA, LU-Z, OR5, VK0,  
VP8, UA1, ZL5, 3Y, 8J  
Argentina.....(SA-13).....LU  
Ascension Is. ....(AF-36).....ZD8  
Austral & French Antarctic (A-39).....FB8  
Australia.....(O-29 & 30).....VK  
Austria.....(E-15).....OE  
Azores Is. ....(E-14).....CT2

Bahama Is. ....(NA-8).....VP7  
Bahrain Is. ....(A-21).....MP4B  
Baker Is. ....(O-31).....KB6  
Balearic Is. ....(E-14).....EA6  
Barbados Is. ....(NA-8).....VP6  
Belgium.....(E-14).....ON  
Bermuda Is. ....(NA-5).....VP9  
Bhutan.....(A-22).....AC5  
Bolivia.....(SA-10).....CP  
Borneo.....(O-28).....8F5  
Botswana.....(AF-38).....ZS9  
Brazil.....(SA-11).....PY  
British Honduras.....(NA-7).....VP1  
British Phoenix Is. ....(O-31).....VR1  
Brunei.....(O-28).....VS5  
Bulgaria.....(E-20).....LZ  
Burma.....(A-26).....XZ  
Burundi.....(AF-36).....9U5

Cambodia.....(A-26).....XU  
Cameroon.....(AF-36).....TJ  
Canada.....(NA-1 to 5).....VE, 3C  
Canal Zone.....(NA-7).....KZ5  
Canary Is. ....(AF-33).....EA8  
Canton Is. ....(O-31).....KB6  
Cape Verde Is. ....(AF-35).....CR4  
Caroline Is. ....(O-27).....KC6  
Cayman Is. ....(NA-8).....ZF1  
Celebes & Molucca Is. ....(O-28).....BF6  
Central African Republic.....(AF-36).....TL8  
Ceuta y Melilla, Spanish.....(A-33).....EA9  
Ceylon.....(A-22).....4S7  
Chad.....(AF-36).....TT8  
Chagos Is. ....(AF-39).....VQ8  
Channel Is. ....(E-14).....GC  
Chatham Is. ....(O-32).....ZL  
Chile.....(SA-12).....CE  
China.....(A-23 & 24).....BY  
Christmas Is. ....(O-29).....VK9  
Clipperton Is. ....(NA-7).....FO8  
Cocos Is. ....(NA-7).....TI9  
Cocos-Keeling Is. ....(O-29).....VK9  
Colombia.....(SA-9).....HK  
Comoro Is. ....(AF-39).....FH8  
Congo, Republic of.....(AF-36).....TN8  
Congo, Republic of the.....(AF-36).....9Q5  
Cook Is. ....(O-32).....ZK1  
Corsica.....(E-15).....FC  
Costa Rica.....(NA-7).....TI  
Crete.....(E-20).....SV  
Crozet Is. ....(AF-39).....FB8  
Cuba.....(NA-8).....CM, CO  
Cyprus.....(A-20).....ZC4  
Czechoslovakia.....(E-15).....OK

Dahomey.....(AF-35).....TY  
Das Is. ....(A-21).....MP4D  
Denmark.....(E-14).....OZ  
Dodecanese Is. ....(E-20).....SV5  
Dominican Republic.....(NA-8).....HI

Easter Is. ....(SA-12).....CE0A  
Ecuador.....(SA-10).....HC  
Egypt.....(AF-34).....SU  
El Salvador.....(NA-7).....YS  
Enderbury Is. ....(O-31).....KB6  
England.....(E-14).....G  
Ethiopia.....(AF-37).....ET3

Faeroes Is. ....(E-14).....OY  
Falkland Is. ....(SA-13).....VP8  
Fanning Is. ....(O-31).....VR3  
Fernando de Noronha.....(SA-11).....PY7  
Fiji Is. ....(O-32).....VR2  
Finland.....(E-15).....OH  
France.....(E-14).....F  
French Polynesia.....(O-32).....F08

Gabon.....(AF-36).....TR8  
Galapagos Is. ....(SA-10).....HC8  
Gambia.....(AF-35).....ZD3  
German Federal Rep, West (E-14).....DJ, DK, DL  
German Dem. Rep, East (E-14).....DM  
Ghana.....(AF-35).....9G1  
Gibraltar.....(E-14).....ZB2  
Gilbert Is. ....(O-31).....VR1  
Goa.....(A-22).....CR8  
Graham Land.....(SA-13).....VP8  
Greece.....(E-20).....SV  
Greenland.....(NA-40).....OX  
Guadeloupe Is. ....(NA-8).....FG7  
Guantanamo Bay.....(NA-8).....KG4  
Guatemala.....(NA-7).....TG  
Guyana.....(SA-9).....8R

Guinea, Portuguese.....(AF-35).....CR3  
Guinea, Republic of.....(AF-35).....7G1  
Guyana.....(SA-9).....8R  
Haiti.....(NA-8).....HH  
Hawaii.....(O-31).....KH6  
Heard Is. ....(O-39).....VK0  
Honduras.....(NA-7).....HR  
Hong Kong.....(A-24).....VS6  
Howland Is. ....(O-31).....KB6  
Hungary.....(E-15).....HA, HG

Iceland.....(E-40).....TF  
Ifni.....(AF-33).....EA9  
India.....(A-22).....VU  
Indonesia.....(O-28).....8F  
Iran.....(A-21).....EP  
Iraq.....(A-21).....YI  
Ireland.....(E-14).....EI  
Isle of Man.....(E-14).....GD  
Israel.....(A-20).....4X4, 4Z4  
Italy.....(E-15).....I  
Ivory Coast.....(AF-35).....TU2

Jamaica.....(NA-8).....6Y5  
Jan Mayen Is. ....(E-40).....JX  
Japan.....(A-25).....JA, JH  
Jarvis Is. ....(O-31).....KP6  
Java.....(O-28).....8F1, 2, 3  
Johnston Is. ....(O-31).....KJ6  
Jordan.....(A-20).....JY  
Juan Fernandez Is. ....(SA-12).....CE0Z

Kamran Is. ....(A-21).....VS9K  
Kenya.....(AF-37).....5Z4  
Kerguelen Is. ....(AF-39).....FB8  
Kermadec Is. ....(O-32).....ZL1  
Korea.....(A-25).....HM, HL9  
Kuwait.....(A-21).....9K2

Labrador.....(NA-2).....VO2, 3B2  
Laccadive Is. ....(A-22).....VU4  
Laos.....(A-26).....XW8  
Lebanon.....(A-20).....OD5  
Leeward Is. (West Indies).....(NA-8).....VP2  
Lesotho.....(AF-38).....ZS8  
Liberia.....(AF-35).....EL  
Libya.....(AF-34).....5A  
Liechtenstein.....(E-14).....HB0  
Line Is. ....(O-31).....VR3  
Little America.....(SA-13).....KC4  
Lord Howe Is. ....(O-30).....VK2  
Luxembourg.....(E-14).....LX

Macao.....(A-24).....CR9  
Macquarie Is. ....(O-30).....VK0  
Madeira Is. ....(AF-33).....CT3  
Madagascar.....(AF-39).....5R8  
Malawi.....(AF-37).....7Q7  
Malaysia, Federation of.....(A-28).....9M2  
Maldives Is. ....(A-22).....8QA  
Mali Republic.....(AF-35).....TZ  
Malta.....(E-15).....9H1  
Manchuria.....(A-24).....BY9  
Manihiki Is. ....(O-32).....HD1  
Marcus Is. ....(A-27).....KG6I  
Mariana Is. ....(O-27).....KG6  
Marshall Is. ....(O-31).....KK6  
Martinique.....(NA-8).....FM7  
Mauritania.....(AF-35).....5T5  
Mauritius Is. ....(AF-39).....VX8  
Mexico.....(NA-6).....XE, XF  
Midway Is. ....(O-31).....KM6  
Monaco.....(E-14).....3A  
Mongolia.....(A-23).....JT1  
Morocco.....(AF-33).....CN  
Mozambique.....(AF-37).....CR7  
Muscat & Oman.....(A-21).....MP4M

Nauru Is. ....(O-31).....VK9  
Navassa Is. ....(NA-8).....KC4  
Nepal.....(A-22).....9N1  
Netherlands.....(E-14).....PA, PE, PI  
Netherlands Antilles.....(SA-9).....PJ  
New Caledonia.....(O-32).....FK8  
Newfoundland.....(NA-5).....VO1, 3B1  
New Guinea, N.E.....(O-28).....VK9  
New Hebrides.....(O-32).....FU8, YJ  
New Zealand.....(O-32).....ZL  
Nicaragua.....(NA-7).....YN  
Niger.....(AF-35).....5U7  
Nigeria.....(AF-35).....5N2  
Niue Is. ....(O-32).....ZK2  
Norfolk Is. ....(O-32).....VK9  
Northern Ireland.....(E-14).....GI  
Norway.....(E-14).....LA

Pakistan.....(A-21, 22).....AP  
Palmyra Is. ....(O-31).....KP6  
Panama.....(NA-7).....HP  
Papua Territory.....(O-28).....VK9  
Paraguay.....(SA-11).....ZP  
Peru.....(SA-10).....OA  
Philippines.....(O-27).....DU  
Phoenix Is. ....(O-31).....KB6  
Pitcairn Is. ....(O-32).....VR6  
Poland.....(E-15).....SP  
Portugal.....(E-14).....CT1  
Prince Edward & Marion Is. (AF-38).....ZS2  
Puerto Rico.....(NA-8).....KP4

Qatar.....(A-21).....MP4Q

Reunion Is. ....(AF-39).....FR7  
Revillagigedo Is. ....(NA-6).....XE4  
Rhodesia.....(AF-38).....ZE  
Rio Muni.....(AF-36).....EA0  
Rodriguez Is. ....(AF-39).....VQ8  
Rumania.....(E-20).....YO  
Rwanda.....(AF-36).....9X5  
Ryukyu Is. ....(A-25).....KR6, KR8

Saba Is. ....(NA-8).....PJ(S)  
Sabah.....(O-28).....9M6  
Saint Helena Is. ....(AF-36).....ZD7  
Saint Maarten Is. ....(NA-8).....PJ2M  
Saint Martin Is. ....(NA-8).....FS7  
Saint Pierre & Miquelon Is. (NA-5).....FP8  
Samoa (U.S.).....(O-32).....KS6  
Samoa, Western.....(O-32).....5W1  
San Andres & Providencia (NA-7).....HK0  
San Marino.....(E-15).....M1, 9A1  
Sao Tome & Principe Is. ....(A-36).....CR5  
Sarawak.....(O-28).....9M8  
Sardinia.....(E-15).....IS  
Saudi Arabia.....(A-21).....HZ, 7Z  
Scotland.....(E-14).....GM  
Senegal.....(AF-35).....6W8  
Serrana Bk & Roncador Cay (NA-7).....KS4B  
Seychelles Is. ....(AF-39).....VQ9  
Sicily.....(E-15).....IT  
Sierra Leone.....(AF-35).....9L1  
Sikkim.....(A-22).....AC3  
Singapore.....(A-28).....9V1  
Socotra Is. ....(AF-37).....VS9  
Solomon Is. ....(O-28).....VR4  
Somali Republic.....(AF-37).....60  
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South Africa.....(AF-38).....ZS  
South Georgia Is. ....(SA-13).....VP8  
South Orkney Is. ....(SA-13).....VP8  
South Sandwich Is. ....(SA-13).....VP8  
South Shetland Is. ....(SA-13).....CE9, VP8  
South-West Africa.....(AF-38).....ZS3  
Soviet Union:

European Russian Soviet Federated  
Socialist Republic.....(E-16).....UA1, 3, 4, 6  
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Ukrainian S.S.R.....(E-16).....UB5  
White Russian S.S.R.....(E-16).....UC2  
Azerbaijdzhan S.S.R.....(A-21).....UD6  
Georgian S.S.R.....(A-21).....UF6  
Armenian S.S.R.....(A-21).....UG6  
Turkmen S.S.R.....(A-17).....UH8  
Uzbek S.S.R.....(A-17).....UI8  
Tadzhik S.S.R.....(A-17).....UJ8  
Kazakh S.S.R.....(A-17).....UL7  
Kirghiz S.S.R.....(A-17).....UM8  
Karelo-Finnish S.S.R.....(E-16).....UN1  
Moldavian S.S.R.....(E-16).....UO5  
Lithuanian S.S.R.....(E-15).....UP  
Latvian S.S.R.....(E-15).....UQ  
Estonian S.S.R.....(E-15).....UR  
Spain.....(E-14).....EA  
Spanish Sahara (Rio de Oro) (A-33).....EA9  
Sudan.....(AF-34).....ST  
Sumatra.....(O-28).....8F4  
Surinam.....(SA-9).....PZ  
Svalbard Is. ....(E-40).....JW  
Swan Is. ....(NA-7).....KS4  
Swaziland.....(AF-38).....ZD5  
Sweden.....(E-14).....SL, SM  
Switzerland.....(E-14).....HB  
Syria.....(A-20).....YK

Taiwan.....(A-24).....BV  
Tanzania.....(AF-37).....5H3  
Tasmania.....(O-30).....VK7  
Thailand.....(A-26).....HS  
Tibet.....(A-23).....AC4  
Timor Is. (Portuguese).....(O-28).....CR8  
Tinian Is. ....(O-27).....KG6T  
Togo.....(AF-35).....5V  
Tokelau Is. ....(O-31).....ZM7  
Tonga (Friendly) Is. ....(O-32).....VR5  
Trinidad & Martin Vaz Is. (SA-11).....PY0  
Trinidad & Tobago Is. ....(SA-9).....9Y4  
Tristan de Cunha & Gough.....(AF-38).....ZD9  
Tromelin Is. ....(AF-39).....FB8  
Trucial Oman.....(A-21).....MP4T  
Tunisia.....(AF-35).....3V8  
Turkey.....(A-20).....TA, TC  
Turks & Caicos Is. ....(NA-8).....VP5

Uganda.....(AF-37).....5X5  
United Nations, Geneva.....(E-14).....4U  
United States of America.....(NA-3, 4, 5).....W, K  
Upper Volta.....(AF-35).....XT2  
Uruguay.....(SA-13).....CX

Vatican City.....(E-15).....HV  
Venezuela.....(SA-9).....YV  
Vietnam.....(A-26).....3W8  
Virgin Is. ....(NA-8).....KV4  
Volcano & Bonin Is. ....(A-27).....KG6I

Wake Is. ....(O-31).....KW6  
Wales.....(E-14).....GW  
Wallis & Futuna Is. ....(O-32).....FW8  
West Iran.....(O-28).....JZ0  
Windward Is. (West Indies) (NA-8).....VP2

Yemen.....(A-21).....4W1  
Yugoslavia.....(E-15).....YU

Zambia.....(AF-36).....9J  
Zanzibar.....(AF-37).....VQ3



# TELEGRAPH CODES

CONTINENTAL CODE	MORSE CODE
Used in radio, on submarine cables and abroad	Used on land lines in United States and Canada
<p>A — —</p> <p>B — — • •</p> <p>C — — • • •</p> <p>D — — • • •</p> <p>E • — —</p> <p>F • — — • •</p> <p>G • — — • • •</p> <p>H • — — • • •</p> <p>I • • — —</p> <p>J • • — — •</p> <p>K • • — — •</p> <p>L • • — — •</p> <p>M • • — — •</p> <p>N • • — — •</p> <p>O • • — — •</p> <p>P • • — — •</p> <p>Q • • — — •</p> <p>R • • — — •</p> <p>S • • — — •</p> <p>T • • — — •</p> <p>U • • — — •</p> <p>V • • — — •</p> <p>W • • — — •</p> <p>X • • — — •</p> <p>Y • • — — •</p> <p>Z • • — — •</p>	<p>A — —</p> <p>B — — • •</p> <p>C — — • • •</p> <p>D — — • • •</p> <p>E • — —</p> <p>F • — — • •</p> <p>G • — — • • •</p> <p>H • — — • • •</p> <p>I • • — —</p> <p>J • • — — •</p> <p>K • • — — •</p> <p>L • • — — •</p> <p>M • • — — •</p> <p>N • • — — •</p> <p>O • • — — •</p> <p>P • • — — •</p> <p>Q • • — — •</p> <p>R • • — — •</p> <p>S • • — — •</p> <p>T • • — — •</p> <p>U • • — — •</p> <p>V • • — — •</p> <p>W • • — — •</p> <p>X • • — — •</p> <p>Y • • — — •</p> <p>Z • • — — •</p>
There are no space letters in the Continental Code	C, O, R, Y, Z and & are composed of dots and spaces T is a short dash L is a longer dash Zero (0) is usually abbreviated to T
<p><b>Figures</b></p> <p>1 — — — — —</p> <p>2 • — — — —</p> <p>3 • • — — —</p> <p>4 • • • — —</p> <p>5 • • • • —</p> <p>6 • • • • •</p> <p>7 • • • • •</p> <p>8 • • • • •</p> <p>9 • • • • •</p> <p>0 • • • • •</p>	<p><b>Figures</b></p> <p>1 — — — — —</p> <p>2 • — — — —</p> <p>3 • • — — —</p> <p>4 • • • — —</p> <p>5 • • • • —</p> <p>6 • • • • •</p> <p>7 • • • • •</p> <p>8 • • • • •</p> <p>9 • • • • •</p> <p>0 • • • • •</p>
<p><b>Punctuation</b></p> <p>(.) • — — — —</p> <p>(,) • — — — —</p> <p>(?) • • — — —</p> <p>(:) • • — — —</p> <p>(;) • • — — —</p> <p>(-) • • — — —</p> <p>(!) • • — — —</p> <p>(') • • — — —</p> <p>(/ ) • • — — —</p> <p>( ) • • — — —</p> <p>(") • • — — —</p>	<p><b>Punctuation</b></p> <p>(.) • — — — —</p> <p>(,) • — — — —</p> <p>(?) • • — — —</p> <p>(:) • • — — —</p> <p>(;) • • — — —</p> <p>(-) • • — — —</p> <p>(!) • • — — —</p> <p>(') • • — — —</p> <p>(/ ) • • — — —</p> <p>( ) • • — — —</p> <p>(") • • — — —</p>

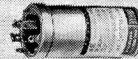
## EMERGENCY SIGNAL

**QRRR** (The land SOS) To be used only by a station in the affected area when calling with an emergency message.

## Build RELIABILITY into your equipment with SPRAGUE

### 'LYTIC CAPACITORS

**Twist-Lok® Electrolytics**



Hermetically sealed in aluminum cases. Withstand high temperatures (85° C), high surge voltages, high ripple currents.

**Screwbase Electrolytics**



Aluminum cases. Will withstand high a-c ripple. Available with lugs or insulated wire leads. Common or separate negative terminals.



**Atom® Electrolytics**

Tiny, dependable single or multiple section units. Low leakage, long shelf life. Metal cases.



**Littl-Lytic® Electrolytics**

Ultra-small, excellent for transistorized circuitry. All-welded construction—no pressure joints to cause "opens". Long shelf life.

### HYPASS® CAPACITORS



Exclusive 3-terminal feed-thru units which effectively by-pass vhf currents. Suppress TVI from transmitters, diathermy, line-conducted radiation, etc.

### SUPPRESSIKITS



Suppress RFI in mobile radio equipment. For vehicles with alternator systems. Type SK-10 for Chrysler vehicles, SK-20 for Ford vehicles with FoMoCo alternators, SK-21 for Ford vehicles with Autolite alternators, SK-30 for G.M. Corp. equipment.

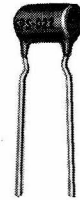


Type SK-1 is designed for mobile radio noise suppression of RFI up to 400 mc. For autos with 6 or 12 volt d-c generators.

### DIFILM® CAPACITORS



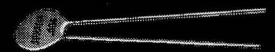
**Black Beauty® Molded Tubulars**  
Dual dielectric (polyester film and paper) combines best features of both. Solid impregnant, nothing to leak or drip. Molded phenolic case. Withstand high temperatures, high humidity.



**Orange Drop® Dipped Tubulars**

Dual dielectric (polyester film and paper), with solid impregnant. Double-dipped in epoxy resin. Radial leads, ideal for printed wiring boards.

### CERAMIC CAPACITORS



**Cera-Mite® Disc Types**

Extremely wide range of capacitance values and voltage ratings. Available in general-application, high-K, temperature-stable, and temperature-compensating types.



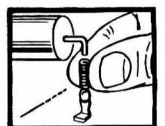
**Buttonhead Types**

Flat disc capacitor element sealed in top of hex head. Screw stud for easy mounting. Low self-inductance, high self-resonant frequency. Ideal for by-pass or feed-thru applications.

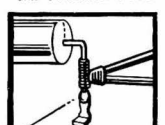
### KWIKETTE® SOLDERING AIDS

Not just another wire spring connector! Copperweld wire inner core, intermediate layer of flux, outer jacket of solder ... all you need is heat!

(4x actual size)



SLIP ON KWIKETTE ...



AND APPLY HEAT!

WIRE FLUX SOLDER

For complete data on these and other Sprague components, get Catalog C-617 from your Sprague Distributor, or write Sprague Products Co., 95 Marshall Street, North Adams, Mass. 01247

68-102-63 R4

**SPRAGUE®**  
THE MARK OF RELIABILITY



# INTERNATIONAL RADIO AMATEUR PREFIXES

The following prefixes are listed in alphabetical order for convenience in locating the country when DX calls are heard.

AC3.....	Sikkim	KG6T.....	Tinian Is.	VQ1.....	Zanzibar
AC4.....	Tibet	KH6.....	Hawaii	VQ8.....	Chagos, Mauritius & Rodriguez Is.
AC5.....	Bhutan	KJ6.....	Johnston Is.	VQ9.....	Seychelles Is.
AP.....	Pakistan	KL7.....	Alaska	VR1.....	Br. Phoenix, Ellice, Gilbert & Ocean Is.
BV.....	Taiwan	KM6.....	Midway Is.	VR2.....	Fiji Is.
BY.....	China	KP4.....	Puerto Rico	VR3.....	Fanning, Line Is.
BY9.....	Manchuria	KP6.....	Jarvis & Palmyra Is.	VR4.....	Solomon Is.
CE.....	Chile	KR6, KR8.....	Ryukyu Is. (Okinawa)	VR5.....	Tonga Is.
CE9.....	South Shetland Is.	KS4.....	Swan Is.	VR6.....	Pitcairn Is.
CE0A.....	Easter Is.	KS4B.....	Serrana Bank & Roncador Cay	VS5.....	Brunei
CE0Z.....	Juan Fernandez Is.	KS6.....	U.S. Samoa	VS6.....	Hong Kong
CM, CO.....	Cuba	KV4.....	Virgin Is.	VS9.....	Aden, Kamaran, Socotra Is.
CN.....	Morocco	KW6.....	Wake Is.	VU.....	India
CP.....	Bolivia	KX6.....	Marshall Is.	VU4.....	Laccadive Is.
CR3.....	Portuguese Guinea	KZ5.....	Canal Zone	VU5.....	Andaman & Nicobar Is.
CR4.....	Cape Verde Is.	LA.....	Norway	W.....	United States of America
CR5.....	Sao Tome & Principe Is.	LU.....	Argentina	XE, XF.....	Mexico
CR6.....	Angola	LX.....	Luxembourg	XE4.....	Revillagigedo Is.
CR7.....	Mozambique	LZ.....	Bulgaria	XT2.....	Upper Volta
CR8.....	Goa	M1.....	San Marino	XU.....	Cambodia
CR8.....	Timor Is. (Portuguese)	MP4.....	Bahrein and Das Is., Muscat & Oman, Qatar, Trucial Oman	XW8.....	Laos
CR9.....	Macao	OA.....	Peru	XZ.....	Burma
CT1.....	Portugal	OD5.....	Lebanon	YA.....	Afghanistan
CT2.....	Azores Is.	OE.....	Austria	YI.....	Iraq
CT3.....	Madeira Is.	OH.....	Finland	YJ.....	New Hebrides
CX.....	Uruguay	OH0.....	Aland Is.	YK.....	Syria
DJ, DK, DL.....	West German Federal Rep.	OK.....	Czechoslovakia	YN.....	Nicaragua
DM.....	East German Democratic Rep.	ON.....	Belgium	YO.....	Rumania
DU.....	Philippines	OX.....	Greenland	YS.....	El Salvador
EA.....	Spain	OY.....	Faeroes Is.	YU.....	Yugoslavia
EA6.....	Balearic Is.	OZ.....	Denmark	YV.....	Venezuela
EA8.....	Canary Is.	PA, PE, PI.....	Netherlands	ZA.....	Albania
EA9.....	Spanish Sahara, Ifni, Ceuta y Melilla	PJ.....	Netherlands Antilles	ZB2.....	Gibraltar
EA0.....	Rio Muni	PJ(A).....	Aruba	ZC4.....	Cyprus
EI.....	Ireland	PJ(B).....	Bonaire	ZD3.....	Gambia
EL.....	Liberia	PJ(C).....	Curacao	ZD5.....	Swaziland
EP.....	Iran	PJ(M).....	Saint Maarten	ZD7.....	Saint Helena
ET3.....	Ethiopia	PJ(S).....	Saba Is.	ZD8.....	Ascension Is.
F.....	France	PX1.....	Andorra	ZD9.....	Tristan da Cunha & Gough Is.
FB8.....	Austral and Antarctic French Lands, Amsterdam, St. Paul, Crozet, Kerguelen, Tromelin Is.	PY.....	Brazil	ZE.....	Rhodesia
FC.....	Corsica	PY7.....	Fernando de Noronha Is.	ZF1.....	Cayman Is.
FG7.....	Guadeloupe Is.	PY0.....	Trinidad & Martin Vaz Is.	ZK1.....	Cook Is.
FH8.....	Comoro Is.	PZ.....	Surinam	ZK2.....	Niue Is.
FK8.....	New Caledonia	SL, SM.....	Sweden	ZL.....	New Zealand
FL8.....	French Somaliland	SP.....	Poland	ZL1.....	Kermadec
FM7.....	Martinique	ST.....	Sudan	ZM7.....	Tokelau Is.
F08.....	French Polynesia, Clipperton Is.	SU.....	Egypt	ZP.....	Paraguay
FP8.....	St. Pierre & Miquelon Is.	SV.....	Greece	ZS.....	South Africa
FR7.....	Reunion Is.	SV5.....	Dodecanese Is.	ZS2.....	Prince Edward & Marion Is.
FS7.....	Saint Martin	TA, TC.....	Turkey	ZS3.....	South-West Africa
FU8.....	New Hebrides	TF.....	Iceland	ZS8.....	Lesotho
FW8.....	Wallis & Futuna Is.	TG.....	Guatemala	ZS9.....	Botswana
FY7.....	French Guiana	TI.....	Costa Rica	3A.....	Monaco
G.....	England	TI9.....	Cocos Is.	3B1.....	Newfoundland
GC.....	Channel Is.	TJ.....	Cameroon	3B2.....	Labrador
GD.....	Isle of Man	TL8.....	Central African Republic	3C.....	Canada
GI.....	Northern Ireland	TN8.....	Republic of Congo (Brazzaville)	3V8.....	Tunisia
GM.....	Scotland	TR8.....	Gabon	3W8.....	Vietnam
GW.....	Wales	TT8.....	Chad	3Y.....	Norwegian Terr. in Antarctica
HA, HG.....	Hungary	TU2.....	Ivory Coast	4S7.....	Ceylon
HB.....	Switzerland	TY.....	Dahomey	4U.....	United Nations, Geneva
HB0.....	Liechtenstein	TZ.....	Mali Republic	4W1.....	Yemen
HC.....	Ecuador	UA1, 3, 4, 6.....	European Russian	4X4, 4Z4.....	Israel
HC8.....	Galapagos Is.		Soviet Federated Socialist Republic	5A.....	Libya
HD1.....	Manihiki Is.	UA9, 0.....	Asiatic Russian S. F. S. R.	5H3.....	Tanzania
HH.....	Haiti	UB5.....	Ukrainian S. S. R.	5N2.....	Nigeria
HI.....	Dominican Republic	UC2.....	White Russian S. S. R.	5R8.....	Madagascar
HK.....	Colombia	UD6.....	Azerbaijdzhan S. S. R.	5T5.....	Mauritania
HK0.....	San Andres & Providencia Is.	UF6.....	Georgian S. S. R.	5U7.....	Niger
HM, HL9.....	Korea	UG6.....	Armenian S. S. R.	5V.....	Togo
HP.....	Panama	UH8.....	Turkmen S. S. R.	5W1.....	Western Samoa
HR.....	Honduras	UI8.....	Uzbek S. S. R.	5X5.....	Uganda
HS.....	Thailand	UJ8.....	Tadzhik S. S. R.	5Z4.....	Kenya
HV.....	Vatican City	UL7.....	Kazakh S. S. R.	60.....	Somali Republic
HZ.....	Saudi Arabia	UM8.....	Kirghiz S. S. R.	6W8.....	Senegal
I.....	Italy	UN1.....	Karelo-Finnish S. S. R.	6Y5.....	Jamaica
IS.....	Sardinia	U05.....	Moldavian S. S. R.	7G1.....	Republic of Guinea
IT.....	Sicily	UP.....	Lithuanian S. S. R.	7Q7.....	Malawi
JA, JH.....	Japan	UQ.....	Latvian S. S. R.	7X.....	Algeria
JT1.....	Mongolia	UR.....	Estonian S. S. R.	7Z.....	Saudi Arabia
JX.....	Jan Mayen Is.	VE.....	Canada	8F.....	Indonesia
JW.....	Svalbard Is.	VK.....	Australia	8F1, 2, 3.....	Java
JY.....	Jordan	VK2.....	Lord Howe Is.	8F4.....	Sumatra
JZ0.....	West Irian	VK7.....	Tasmania	8F5.....	Borneo
K.....	United States of America	VK9.....	New Guinea, Papua, Christmas, Cocos-Keeling, Nauru, Norfolk Is.	8F6.....	Celebes & Molucca Is.
KA.....	U.S. Personnel in Japan	VK0.....	Heard & Macquarie Is., Antarctica	8QA.....	Maldives Is.
KB6.....	Baker, Canton, Enderbury, Howland & Phoenix Is.	V01.....	Newfoundland	8R.....	Guyana
KC4.....	Navassa Is.	V02.....	Labrador	9A1.....	San Marino
KC4AA, KC4US.....	Antarctica	VP1.....	British Honduras	9G1.....	Ghana
KC6.....	Caroline Is.	VP2.....	Leeward & Windward Is.	9H1.....	Malta
KG1.....	U.S. Personnel in Greenland	VP5.....	Turks & Caicos Is.	9J.....	Zambia
KG4.....	Guantanamo Bay, Cuba	VP6.....	Barbados Is.	9K2.....	Kuwait
KG6.....	Mariana Is. (Guam)	VP7.....	Bahama Is.	9L1.....	Sierra Leone
KG6L.....	Marcus, Volcano & Bonin Is.	VP8.....	Falkland, S. Georgia, S. Orkney, S. Sandwich, S. Shetland Is., Graham Land	9M2.....	Federation of Malaysia
KG6S.....	Saipan Is.	VP9.....	Bermuda Is.	9M6.....	Sabah
				9M8.....	Sarawak
				9N1.....	Nepal
				9Q5.....	Republic of the Congo (Kinshasa)
				9U5.....	Burundi
				9V1.....	Singapore
				9X5.....	Rwanda
				9Y4.....	Trinidad & Tobago Is.



## CENSUS OF AMATEUR RADIO LICENSES in the U.S.A. by classes, within states and call areas, from Fall 1967 Callbook

Call Area	State	Novice	Tech-nician	Con-ditional	General	Advanced	Extra	Club	Military	Multiple stations	State totals	YL's (Included in state totals)
#1	Conn.	195	766	918	1,942	649	101	83	12	71	4,737	134
	Maine	56	109	690	395	249	53	16	16	35	1,619	55
	Mass.	447	3,349	689	4,662	1,550	244	124	43	168	11,276	396
	N.H.	69	394	199	575	203	34	18	9	54	1,555	73
	R.I.	48	548	116	645	180	38	25	6	23	1,629	67
	Vt.	31	64	257	158	81	12	8	5	32	648	38
		<u>846</u>	<u>5,230</u>	<u>2,869</u>	<u>8,377</u>	<u>2,912</u>	<u>482</u>	<u>274</u>	<u>91</u>	<u>383</u>	<u>21,464</u>	<u>763</u>
#2	N.J.	675	3,638	440	5,702	1,975	317	169	24	109	13,049	322
	N.Y.	<u>1,236</u>	<u>6,817</u>	<u>1,017</u>	<u>11,080</u>	<u>3,149</u>	<u>505</u>	<u>334</u>	<u>70</u>	<u>230</u>	<u>24,438</u>	<u>644</u>
		<u>1,911</u>	<u>10,455</u>	<u>1,457</u>	<u>16,782</u>	<u>5,124</u>	<u>822</u>	<u>503</u>	<u>94</u>	<u>339</u>	<u>37,487</u>	<u>966</u>
#3	Del.	23	112	46	328	73	13	7	4	13	619	13
	Md.	224	910	315	2,467	857	131	57	23	70	5,054	110
	Pa.	737	3,999	994	6,804	1,843	273	200	49	168	15,067	433
	D.C.	26	111	41	322	153	23	15	15	28	734	16
		<u>1,010</u>	<u>5,132</u>	<u>1,396</u>	<u>9,921</u>	<u>2,926</u>	<u>440</u>	<u>279</u>	<u>91</u>	<u>279</u>	<u>21,474</u>	<u>572</u>
#4	Ala.	165	720	959	1,394	374	51	24	19	36	3,742	142
	Fla.	372	1,613	2,103	3,811	1,664	226	88	47	241	10,165	374
	Ga.	211	617	1,004	1,575	492	65	47	33	38	4,082	107
	Ky.	127	446	598	872	310	46	30	16	28	2,473	56
	N.C.	217	610	1,138	1,523	534	61	46	35	68	4,232	134
	S.C.	132	124	1,166	454	153	29	21	30	23	2,132	60
	Tenn.	237	1,148	765	1,642	439	65	38	15	52	4,401	122
	Va.	267	831	947	2,469	896	130	58	61	92	5,751	128
		<u>1,728</u>	<u>6,109</u>	<u>8,680</u>	<u>13,740</u>	<u>4,862</u>	<u>673</u>	<u>352</u>	<u>256</u>	<u>578</u>	<u>36,978</u>	<u>1,123</u>
#5	Ark.	109	265	493	562	200	28	25	13	34	1,729	74
	La.	154	367	852	1,209	378	51	35	27	37	3,110	81
	Miss.	48	130	610	528	194	20	12	12	37	1,591	35
	N.M.	62	126	709	411	265	46	16	18	27	1,680	68
	Okla.	164	692	637	1,220	493	52	41	43	44	3,386	118
	Texas	706	2,532	3,719	5,495	2,060	225	146	113	170	15,166	615
		<u>1,243</u>	<u>4,112</u>	<u>7,020</u>	<u>9,425</u>	<u>3,590</u>	<u>422</u>	<u>275</u>	<u>226</u>	<u>349</u>	<u>26,662</u>	<u>991</u>
#6	Calif.	<u>1,535</u>	<u>8,780</u>	<u>4,224</u>	<u>16,261</u>	<u>6,994</u>	<u>801</u>	<u>469</u>	<u>199</u>	<u>550</u>	<u>39,813</u>	<u>1,304</u>
#7	Ariz.	188	660	639	1,159	453	63	32	41	65	3,300	148
	Idaho	48	32	613	162	139	15	9	17	21	1,056	50
	Mont.	44	50	722	153	131	24	15	15	12	1,166	58
	Nev.	24	49	385	154	106	12	8	13	38	789	31
	Oreg.	252	598	983	1,738	621	60	60	37	46	4,395	206
	Utah	109	254	213	539	168	26	14	24	18	1,365	41
	Wash.	312	1,087	1,497	2,788	1,011	127	68	53	79	7,022	303
	Wyo.	47	24	259	117	64	7	11	3	7	539	26
		<u>1,024</u>	<u>2,754</u>	<u>5,311</u>	<u>6,810</u>	<u>2,693</u>	<u>334</u>	<u>217</u>	<u>203</u>	<u>286</u>	<u>19,632</u>	<u>863</u>
#8	Mich.	677	2,947	1,184	4,551	1,151	118	130	37	120	10,915	359
	Ohio	869	5,769	712	6,448	1,893	181	202	47	153	16,274	550
	W.Va.	98	451	231	790	169	23	21	11	29	1,823	47
		<u>1,644</u>	<u>9,167</u>	<u>2,127</u>	<u>11,789</u>	<u>3,213</u>	<u>322</u>	<u>353</u>	<u>95</u>	<u>302</u>	<u>29,012</u>	<u>956</u>
#9	Ill.	863	3,614	2,027	6,389	1,899	207	209	42	194	15,444	482
	Ind.	322	2,183	633	2,546	743	74	114	21	83	6,719	253
	Wisc.	315	842	1,102	1,745	682	63	78	29	62	4,918	127
		<u>1,500</u>	<u>6,639</u>	<u>3,762</u>	<u>10,680</u>	<u>3,324</u>	<u>344</u>	<u>401</u>	<u>92</u>	<u>339</u>	<u>27,081</u>	<u>862</u>
#10	Colo.	140	455	764	1,285	496	77	40	31	45	3,333	128
	Iowa	253	634	680	1,785	571	64	48	17	46	4,098	127
	Kans.	243	327	1,140	1,232	458	63	43	48	31	3,585	145
	Minn.	298	534	985	1,851	624	81	57	19	40	4,489	114
	Mo.	265	1,099	960	2,250	756	104	72	25	55	5,586	181
	Nebr.	139	305	566	831	271	30	31	18	10	2,201	78
	N.D.	39	17	497	79	72	14	11	14	12	755	30
	S.D.	42	48	294	273	94	7	10	10	11	789	39
		<u>1,419</u>	<u>3,419</u>	<u>5,886</u>	<u>9,586</u>	<u>3,342</u>	<u>440</u>	<u>312</u>	<u>182</u>	<u>250</u>	<u>24,836</u>	<u>842</u>
Grand total, 48 states and D.C. only		<u>13,860</u>	<u>61,797</u>	<u>42,732</u>	<u>113,371</u>	<u>38,980</u>	<u>5,080</u>	<u>3,435</u>	<u>1,529</u>	<u>3,655</u>	<u>284,439</u>	<u>9,242</u>



# A. R. R. L. COUNTRIES LIST

The ARRL Postwar Countries List is the official standard used in connection with the DX Century Club. To qualify for the DX Century Club Award, an applicant must submit confirmations from at least 100 different countries contacted after November 15, 1945, in accordance with the Postwar DXCC Rules. Copies of the DXCC Rules will be furnished by ARRL on request.

AC3.....Sikkim  
AC4.....Tibet  
AC.....Bhutan  
AP.....East Pakistan  
AP.....West Pakistan

BV, (C3).....Formosa  
BY, (C).....China

\*C9.....Manchuria  
CE.....Chile  
CE9, KC4, LU-Z, VK0, VP8, OR4, etc. ....Antarctica  
CE9 (See VP8)

CE9A.....Easter Island  
CE9X.....San Felix  
CE9Z.....Juan Fernandez arch.

CM, C0.....Cuba  
CN2, 8, 9.....Tangier  
CP.....Morocco

CR.....Bolivia  
CR3, 5.....Portuguese Guinea  
CR4.....Cape Verde Islands

CR5.....Principe, Sao Tome  
CR6.....Angola  
CR7.....Mozambique

\*CR8.....Damao, Diu  
\*CR8.....Goa  
\*CR8, GR10.....Portuguese Timor

CR9.....Macao  
CT1.....Portugal  
CT2.....Azores

CT3.....Madeira Islands  
CX.....Uruguay

DJ, DL, DM.....Germany  
DU.....Philippine Islands

EA.....Spain  
EA6.....Balearic Islands  
EA8.....Canary Islands

EA9.....Ifni  
EA9.....Rio de Oro  
EA9.....Spanish Morocco

EA0.....Spanish Guinea  
EL.....Republic of Ireland  
EL.....Liberia

EP.....Iran  
\*ET2.....Eritrea  
ET3.....Ethiopia

F.....France  
FA, 7X2, 3.....Algeria  
FB8.....Amsterdam & St. Paul Is.

FB8.....Crozet Is.  
FB8 (See FB8)  
FB8.....Kerguelen Islands

FB8 (See 5R8)  
FB8 (See FR7)  
FC (unofficial).....Corsica

FD (See 5V)  
FE8 (See TJ)  
FF4 (See TU)  
FF7 (See 5T)

FF8 (See TY)  
FF8 (See TZ)  
FF8 (See 5U7)

FF8 (See XT)  
FF8 (See 6W8)  
\*FB8.....French West Africa

FG7.....Guadeloupe  
FH8, FB8.....Comoro Islands  
\*F8.....French Indo-China

\*FK8.....New Caledonia  
FL8.....French Somaliland  
FM7.....Martinique

\*FN.....French India  
FB8.....Clipperton Island  
FB8.....French Oceania

FB8.....St. Pierre & Miquelon Is.  
FQ8 (See TL)  
FQ8 (See TT)

FQ8 (See TN)  
FQ8 (See TR)

\*FQ8.....French Equatorial Africa  
\*FR7.....Glorioso Islands  
\*FR7.....Juan de Nova

FR7.....Reunion  
FR7.....Tromelin  
FS7.....Saint Martin

FU8, YJ.....New Hebrides  
FW8.....Wallis & Futuna Islands  
FY7.....French Guiana & Inini

G.....England  
GC.....Guernsey & Dependencies  
GC.....Jersey Island

GD.....Isle of Man  
GM.....Northern Ireland  
GM.....Scotland

GW.....Wales  
HA.....Hungary  
HB.....Switzerland

HC.....Ecuador  
HC8.....Galapagos Islands  
HE, HB0.....Liechtenstein

HI.....Haiti  
HL.....Dominican Republic  
HK.....Colombia

HK0.....Bajo Nuevo  
HK0.....Malpelo Is.  
HK0.....San Andres & Providencia

HL, HM.....Korea  
HP.....Panama  
HS.....Honduras

HT.....Thailand  
HV.....Vatican  
HZ, 7Z.....Saudi Arabia

II, IT1.....Italy  
\*II.....Trieste  
\*IS.....Italian Somaliland

IS1.....Sardinia  
JA, KA.....Japan  
JT1.....Mongolia

JY.....Jordan  
\*JZB.....Netherlands New Guinea  
K, W.....United States of America

K (See JA)  
KA.....Baker, Howland & American Phoenix Islands  
KC4 (See CE9)

KC4.....Navassa Island  
KC6.....Eastern Caroline Is.  
KC6.....Western Caroline Is.

KG1 (See OX)  
KG4.....Guantanamo Bay  
KG6.....Guam

KG6.....Marcus Island  
KG6.....Mariana Islands  
KG6.....Bonin & Volcano Islands

KG6.....Kure Island  
KJ6.....Johnston Island  
KL7.....Alaska

KM6.....Midway Islands  
KP6.....Palmyra Group, Jarvis Is.  
KR6.....Ryukyu Islands

KS4B.....Serrana Bank & Roncador Cay  
KS4.....Swan Islands  
KS6.....American Samoa

KV4.....Virgin Islands  
KW6.....Wake Island  
KX6.....Marshall Islands

KZ5.....Canal Zone  
LA.....Bouvet Island  
LA.....Jan Mayen

LA.....Norway  
LA.....Svalbard  
LU.....Argentina

LU-Z (See CE9)  
LX.....Luxembourg  
LZ.....Bulgaria

M1, 9A1.....San Marino  
MP4.....Bahrein  
MP4.....Qatar

MP4M, VS9.....Sultanate of Muscat & Oman  
MP4.....Trucial Oman  
OA.....Peru

OD5.....Lebanon  
OE.....Austria  
OH.....Finland

OH.....Aland Islands  
OK.....Czechoslovakia  
OM4, 5.....Belgium

OQ5, 0 (See 9Q5)  
OX, KG1.....Greenland  
OY.....Faroe Islands

OZ.....Denmark  
PA0, P11.....Netherlands  
PJ.....Netherlands Antilles

PJ2M.....Sint Maarten  
\*PK1, 2, 3.....Java  
\*PK4.....Sumatra

\*PK5.....Netherlands Borneo  
\*PK6.....Celebes & Molucca Islands  
PX.....Andorra

PY.....Brazil  
PY0.....Fernando de Noronha  
PY0.....St. Peter & St. Paul's Rocks

PY0.....Trinidad & Martin Vaz Is.  
PY1.....Surinam  
SL, SM.....Sweden

SP.....Poland  
ST2.....Sudan  
SU.....Egypt

SV.....Crete  
SV.....Dodecanese  
SV.....Greece

TA.....Turkey  
TF.....Iceland  
TG.....Guatemala

TI.....Costa Rica  
TI9.....Cocos Island  
TI.....Cameroun

TI.....Central African Rep.  
\*TN.....Congo Rep.  
\*TR.....Gabon Rep.

\*TT.....Chad Rep.  
\*TU.....Ivory Coast  
\*TY.....Dahomey Rep.

\*TZ.....Mali Rep.  
UA, UV, UW1-6, UN1.....European Russian S.F.S.R.  
UJ.....Franz Josef Land

UA2.....Kalinigradsk  
UA, UW9, 0.....Asiatic R.S.F.S.R.  
UB5, UT5.....Ukraine

UC2.....White Russian, S.S.R.  
UD6.....Azerbaijan  
UF6.....Georgia

UG6.....Armenia  
UH8.....Turkoman  
UI8.....Uzbek

UL7.....Kazakh  
UM8.....Kirghiz  
\*UN1.....Karelo-Finnish Republic

UO5.....Moldavia  
UP2.....Lithuania  
UQ2.....Latvia

UR2.....Estonia  
VE, VO.....Canada  
VK.....Australia (inc. Tasmania)

VK.....Lord Howe Island  
VK4.....Willis Islands  
VK9, ZC3.....Christmas Island

VK9.....Cocos Islands  
VK9.....Nauru Island  
VK9.....Norfolk Island

VK9.....Papua Territory  
VK0 (See CE9)  
VK0.....Territory of New Guinea

VK0.....Heard Island  
VK0.....Macquarie Island  
\*VO (See VE)

\*VO.....Newfoundland, Labrador  
VP1.....British Honduras  
\*VP2.....Anguilla

\*VP2.....Antigua, Barbuda  
\*VP2.....British Virgin Islands  
\*VP2.....Dominica

\*VP2.....Grenada & Dependencies  
\*VP2.....Montserrat  
\*VP2.....St. Kitts, Nevis

\*VP2.....St. Lucia  
\*VP2.....St. Vincent & Dependencies  
VP3.....British Guiana

VP4, 9Y4.....Trinidad & Tobago  
VP5 (See 6Y5)  
VP5.....Cayman Islands

VP5.....Turks & Caicos Islands  
VP6.....Barbados  
VP7.....Bahama Islands

VP8 (See CE9)  
VP8.....Falkland Islands  
VP8, LU-Z.....So. Georgia Is.

VP8, LU-Z.....So. Orkney Is.  
VP8, LU-Z, CE9.....So. Sandwich Is.  
VP9.....Bermuda Islands

VQ1.....Zanzibar  
VQ2 (See 9J2)  
VQ3 (See 5H3)  
VQ4 (See 5Z4)

VQ4 (See 5X5)  
\*VQ6.....British Somaliland  
VQ8.....Agalega & St. Brandon  
VQ8.....Chagos Islands

VQ8.....Mauritius  
VQ8.....Rodriguez Island  
VQ9.....Aldabra Isl.  
VQ9.....Seychelles

VR1.....British Phoenix Islands  
VR1.....Gilbert & Ellice Is. & Ocean Island  
VR2.....Fiji Islands  
VR3.....Fanning & Christmas Is.

VR4.....Solomon Islands  
VR5.....Tonga Islands  
VR6.....Pitcairn Island  
\*VS1, 9M4 (See 9M2, 4)  
VS2 (See 9M2)

\*VS4.....Sarawak  
VS4, ZC5 (See 9M6, 8)  
VS5.....Brunei  
VS6.....Hong Kong

VS9.....Aden & Socotra  
VS9K.....Kamran Is.  
VS9H.....Kuria Muria Is.  
VS9M.....Maldives Islands

VS9 (See MP4)  
VU.....Andaman & Nicobar Is.  
VU.....India  
VU.....Laccadive Islands

W (See K)  
XE, XF.....Mexico  
XF4.....Revilla Gigedo  
\*XT.....Voltaic Rep.

XU5 (See 3W8)  
XW8.....Laos  
XZ2.....Burma  
YA.....Afghanistan

YZ.....Iraq  
YJ (See FUB)  
YK.....Syria  
YK, YN0.....Nicaragua

Y0.....Rumania  
YS.....Salvador  
YU.....Yugoslavia  
YV.....Venezuela

YV0.....Aves Island  
ZA.....Albania  
ZB1, 9H1.....Malta  
ZB2.....Gibraltar

ZC3 (See VK9)  
ZC4 (See 5B4)  
ZC5 (See 9M6, 8)  
\*ZC5.....British North Borneo

ZC6.....Palestine  
ZD1 (See 9L1)  
ZD2 (See 5N2)  
ZD3.....The Gambia

ZD4 (See 9G1)  
\*ZD4.....Gold Coast, Togoland  
ZD5, ZS7.....Swaziland  
ZD6 (See 7Q7)

ZD7.....St. Helena  
ZD8.....Ascension Island  
ZD9.....Tristan da Cunha & Gough Island  
ZE.....Rhodesia

ZF1 (See VP5)  
ZK1.....Cook Islands  
ZK1.....Manihiki Islands  
ZK2.....Niue

ZL.....Auckland Is. & Campbell Is.  
ZL.....Chatham Islands  
ZL.....Kermadec Islands  
ZL (See CE9)  
ZL5 (See CE9)  
ZM6.....Western Samoa

ZM7.....Tokelau  
ZP.....Paraguay  
ZS1, 2, 4, 5, 6.....South Africa  
ZS3.....Prince Edward & Marion Is.

ZS7 (See ZD5)  
ZS8.....Southwest Africa  
ZS9.....Basutoland  
ZS9.....Bechuanaland

1S.....Spratly Is.  
3A.....Monaco  
3V8.....Tunisia  
3W8, XV5.....Vietnam

4S7.....Ceylon  
4U.....I.T.U. Geneva  
4W.....Yemen  
4X.....Israel

5A.....Libya  
5B4, ZC4.....Cyprus  
5H3, VQ3.....Tanganyika  
5M2, ZD2.....Nigeria

5M8, FB8.....Malagasy Rep.  
\*5T.....Mauritania  
\*5U7.....Niger Rep.  
5V.....Togo Rep.

5W1 (See ZM6)  
5X5, VQ5.....Uganda  
5Z4, VQ4.....Kenya  
601, 2, 6.....Somali Rep.

\*6W8, FF8.....Senegal Rep.  
6V5, VP5.....Jamaica  
7G1.....Rep. of Guinea  
7Q7, ZD6.....Malawi

7X2, 3 (See FA)  
7Z (See HZ)  
\*8F.....Indonesia  
8Z4.....Saudi Arabia/Iraq Neutral Zone

8Z5 (See 9K3)  
9A1 (See M1)  
\*9G1, ZD4.....Ghana  
9H1 (See ZB1)

9J2, VQ2.....Zambia  
9K3, 8Z5.....Kuwait  
9L1, ZD1.....Kuwait/Saudi Arabia Neutral Zone  
\*9M2.....Malaya

\*9M2, 4.....West Malaysia  
\*9M6, 8.....East Malaysia  
9N1.....Nepal  
9Q5, 0Q5, 0.....Rep. of the Congo

\*9S4.....Saar  
\*9U5.....Burundi  
\*9U5.....Ruanda-Urundi  
\*9X5.....Rwanda  
9Y4 (See VP4)





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AC3	Sikkim.....	1	KC6	Caroline Is.....	29	VR1	British Phoenix, Ellice, Gilbert & Ocean Is.	4
AC4	Tibet.....	2	KG4	Guantanamo Bay, Cuba.....	12	VR2	Fiji Is.....	21
AC5	Bhutan.....	2	KG6	Mariana Is. (Guam).....	75	VR3	Line Is.....	1
AP	Pakistan.....	51	KG6I	Volcano, Bonin & Marcus Is.....	4	VR4	Solomon Is.....	6
			KG6S	Saipan Is.....	7	VR6	Pitcairn Is.....	1
BV	Taiwan (Formosa).....	6	KH6	Hawaii.....	1,447	VS5	Brunei.....	4
			KJ6	Johnston Is.....	13	VS6	Hong Kong.....	35
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FB8	Amsterdam, St. Paul, Crozet, Kerguelen, Tromelin Is.....	4				ZL	New Zealand.....	3,675
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FS7	Saint Martin.....	1	SU	Egypt.....	7	4S7	Ceylon.....	55
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			TN8	Republic of Congo (Brazzaville).....	9	5V	Togo.....	1
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HV	Vatican City.....	2		VE8 -	153	8R	Guyana.....	13
HZ	Saudi Arabia.....	5		VE0 -	17			
			VK	Australia.....	5,363	9G1	Ghana.....	50
I	Italy.....	2,912	VK0	Heard & Macquarie Is, Antarctica.....	8	9H1	Malta.....	36
IS	Sardinia.....	42	V01	Newfoundland.....	226	9J	Zambia.....	60
IT	Sicily.....	114	V02	Labrador.....	30	9K2	Kuwait.....	25
			VP1	British Honduras.....	34	9L1	Sierra Leone.....	11
JA, JH	Japan.....	11,263	VP2	Windward-Leeward Is.....	125	9M2	Federation of Malaysia.....	73
JT1	Mongolia.....	2	VP5	Turks & Caicos Is.....	10	9M6	Sabah.....	9
JX	Jan Mayen Is.....	1	VP6	Barbados Is.....	60	9M8	Sarawak.....	19
			VP7	Bahama Is.....	51	9N1	Nepal.....	2
K, W	United States of America (48 states)...	284,439	VP8	Falkland, South Georgia, South Orkney, South Sandwich, South Shetland Is....	43	9Q5	Republic of the Congo (Leopoldville)...	148
KA	U. S. Personnel in Japan.....	85		Bermuda Is.....	42	9U5	Burundi.....	14
KB6	Baker, Canton, Enderbury, Howland & Phoenix Is.....	13	VP9	Zanzibar.....	2	9V1	Singapore.....	59
			VQ1	Chagos, Mauritius & Rodriquez Is.....	26	9X5	Rwanda.....	46
KC4AA, US	Antarctica.....	13	VQ8			9Y4	Trinidad & Tobago Is.....	32
			VQ9	Seychelles Is.....	6			

\* From the Fall 1967 Radio Amateur Callbooks.  
Absence of prefix and country indicates either that no licenses have been issued or have not been obtainable from official sources.



# 73

*Amateur Radio*



## ANSWER THESE QUESTIONS AND RECEIVE YOUR JUST REWARD

- Which ham magazine has grown over 25% in the last six months?
- Which ham magazine features over 25 down-to-earth, easy-to-read and understand technical and construction articles by the best ham authors each month?
- Which ham magazine doesn't waste space on outdated operating news?
- Which ham magazine gives you W2NSD's inside information on what's really happening in amateur radio?
- Which ham magazine is readable, and lighthearted instead of stuffily old-fashioned?
- Which ham magazine waxes fatter and fatter each month?
- Which ham magazine gives you interesting reviews of all the new equipment?
- Which ham magazine gives you the latest technical developments?
- Which ham magazine costs only \$4 per year?

IF YOU CAN ANSWER ALL OF THE ABOVE QUESTIONS CORRECTLY\* YOU ARE ENTITLED TO A SUBSCRIPTION TO 73 AT THE SPECIAL REGULAR PRICE OF \$4 FOR 12 FASCINATING ISSUES!

Name \_\_\_\_\_ Call \_\_\_\_\_  
 Address \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

\*If you don't know the answers you must not be familiar with 73. Send for a free sample.

**73 Magazine Peterborough, New Hampshire 03458**

## DX OPERATING CODE

(For W/VE Amateurs)

Some amateur DXers have caused considerable confusion and QRM in their efforts to work DX stations. The points below, if observed by all W/VE amateurs, will help make DX more enjoyable for all.

1. Call DX only after he calls CQ, QRZ? or signs SK, or 'phone equivalents thereof. Make your calls short.
2. Do not call a DX station:
  - a. On the frequency of the station he is calling until you are sure the QSO is over (SK).
  - b. Because you hear someone else calling him.
  - c. When he signs KN, AR or CL.
  - d. Exactly on his frequency.
  - e. After he calls a directional CQ, unless of course you are in the right direction or area.
3. Keep within frequency band limits. Some DX stations can get away with working outside, but you cannot.
4. Observe calling instructions given by DX stations.  
 Example: "15U" means "call 15 kc. up from my frequency".  
 "15D" means down, etc.
5. Give honest reports. Many DX stations depend on W/VE reports for adjustment of station and equipment.
6. Keep your signal clean. Key clicks, ripple, feedback or splatter give you a bad reputation and may get you a citation from FCC.
7. Listen and call the station you want. Calling CQ DX is not the best assurance that the rare DX will reply.
8. When there are several W or VE stations waiting, avoid asking DX to "listen for a friend". Also avoid engaging him in a rag chew against his wishes.

(For Overseas Amateurs)

To all overseas amateur stations:

In their eagerness to work you, many W and VE amateurs resort to practices which cause confusion and QRM. Most of this is good-intentioned but ill-advised; some of it is intentional and selfish. The key to the cessation of unethical DX operating practices is in your hands. We believe that your adoption of certain operating habits will increase your enjoyment of amateur radio and that of amateurs on this side who are eager to work you. We recommend your adoption of the following principles:

1. Do not answer calls on your own frequency.
2. Answer calls from W/VE stations only when their signals are of good quality.
3. Refuse to answer calls from other stations when you are already in contact with someone, and do not acknowledge calls from amateurs who indicate they wish to be "next".
4. Give everybody a break. When many W/VE amateurs are patiently and quietly waiting to work you, avoid complying with requests to "listen for a friend".
5. Tell listeners where to call you by indicating how many kilocycles up (U) or down (D) from your frequency you are listening.  
 Examples: c.w. - "CQ DX CQ DX CQ DX 15U DE AC4YN AC4YN AC4YN 15U K"; 'phone - "Answer 15 kilocycles up from my frequency".
6. Use the ARRL-recommended ending signals, especially KN, to indicate to impatient listeners the status of the QSO. (KN means "Go ahead (specific station), all others keep out".)
7. Let it be known that you avoid working amateurs who are constant violators of the above principles.

ARRL Communications Department



## GREAT CIRCLE BEARINGS IN THE UNITED STATES

ATLANTA, GA.	264	322	47	24	25	301	343	15	86	269	297	320	7	271	310	310	251	347	145	306	281	281	347	154	345	331	321	234	48	64	48	278	27	318	296	289	308	48	84
BIRMINGHAM, ALA.	82	326	50	31	40	304	356	26	84	268	299	328	17	270	312	246	5	125	314	287	281	10	142	355	338	0	219	52	67	53	278	37	333	298	290	309	53	83	
BISMARCK, N. D.	132	137	92	97	115	209	114	105	124	167	205	133	104	198	273	165	119	132	148	150	233	123	135	109	108	131	151	99	111	102	217	106	134	237	249	282	107	119	
BOSTON, MASS.	236	241	291	277	247	278	273	267	226	254	275	275	274	262	293	246	263	220	268	253	273	256	207	278	286	249	237	235	219	233	268	258	262	280	280	295	236	217	
BUFFALO, N. Y.	208	217	291	92	206	273	264	237	192	241	269	268	261	252	290	231	243	191	258	237	267	231	184	274	286	225	219	118	160	134	261	199	248	276	276	293	159	174	
CHARLESTON, W. VA.	208	223	307	61	24	287	309	359	174	251	282	293	345	260	300	238	293	180	279	251	274	270	174	316	311	245	223	66	108	71	269	31	275	286	282	301	80	143	
CHEYENNE, WYO.	108	112	26	76	91	81	81	103	140	187	83	79	189	319	143	90	113	101	119	241	95	119	76	62	104	128	81	92	83	219	84	98	268	262	303	87	100		
CHICAGO, ILL.	161	175	302	82	78	125	272	93	144	221	266	268	80	242	293	210	151	155	245	208	262	157	156	350	308	173	190	91	116	97	254	101	212	274	272	295	106	131	
CLEVELAND, OHIO	197	209	297	80	55	179	277	277	176	240	272	275	310	252	293	228	245	180	261	235	268	226	175	290	296	219	214	95	136	105	262	127	250	278	277	296	124	156	
COLUMBIA, S. C.	268	267	317	41	10	354	299	329	356	270	295	311	350	271	308	256	326	189	300	279	282	320	174	331	323	297	246	39	53	37	279	7	305	295	290	307	33	85	
DALLAS, TEXAS	81	82	349	57	49	61	325	36	50	80	319	15	45	266	325	157	47	97	15	61	280	55	112	32	11	65	115	60	71	61	277	55	40	308	291	315	63	80	
DENVER, COLORADO	103	107	22	73	72	87	6	75	77	99	134	74	74	189	325	138	84	109	91	112	246	90	116	70	55	98	124	78	88	80	224	80	91	283	267	308	83	96	
DES MOINES, IOWA	134	144	318	80	78	105	271	84	87	123	197	262	81	231	297	187	105	135	197	171	257	116	141	69	5	133	165	87	104	91	247	92	137	273	270	296	97	115	
DETROIT, MICH.	188	200	295	86	79	164	273	263	129	168	233	268	268	248	291	222	224	174	254	227	265	208	171	282	292	206	207	100	133	109	258	128	238	275	274	294	124	151	
EL PASO, TEXAS	77	78	14	58	54	64	8	50	56	76	79	8	42	53	345	98	57	86	48	71	285	62	97	46	33	68	92	61	69	62	290	59	57	335	298	327	64	75	
HELENA, MONTANA	112	116	85	84	88	100	133	97	93	108	134	141	105	92	162	136	101	115	115	122	203	105	119	94	91	111	127	89	98	92	180	94	109	179	224	283	95	104	
HOUSTON, TEXAS	64	60	348	50	40	49	329	25	39	67	338	325	6	34	285	327	34	84	3	26	288	40	103	22	5	46	86	52	60	53	289	45	24	314	297	319	5	68	
INDIANAPOLIS, IND.	166	185	308	72	58	110	281	332	62	143	234	276	290	41	250	298	220	157	267	226	267	168	158	338	316	188	199	80	107	85	261	80	251	281	277	298	94	127	
JACKSONVILLE, FLA.	327	309	324	33	9	1	308	339	0	8	286	304	323	355	282	314	273	340	314	300	288	338	163	341	332	326	271	29	34	28	287	8	323	303	295	312	23	39	
KANSAS CITY, MO.	120	129	332	72	67	90	288	60	73	111	196	278	15	66	236	306	184	82	126	157	262	95	134	50	9	113	157	78	93	81	253	79	97	282	275	302	85	105	
LITTLE ROCK, ARK.	97	104	335	59	48	65	307	26	48	92	243	300	352	41	260	315	208	43	114	338	276	55	128	21	356	71	158	62	76	64	271	56	22	297	286	309	67	89	
LOS ANGELES, CALIF.	81	82	41	62	61	70	52	62	65	79	88	57	60	62	100	19	96	67	87	67	81	70	94	59	52	76	92	65	71	66	95	67	69	35	319	348	68	78	
LOUISVILLE, KY.	166	190	313	66	47	87	287	339	43	137	242	282	301	26	256	302	227	348	156	280	239	271	158	342	322	202	205	71	98	75	266	63	278	285	281	301	82	120	
MIAMI, FLORIDA	337	326	329	22	3	355	313	342	356	355	302	310	329	353	291	318	290	342	345	321	315	293	341	342	335	334	298	18	16	15	293	1	330	308	299	315	11	13	
MILWAUKEE, WIS.	162	175	297	87	88	132	267	170	107	147	218	261	253	99	239	290	207	157	156	235	204	259	160	157	298	172	188	98	121	103	251	111	203	271	270	293	113	135	
MINNEAPOLIS, MINN.	145	154	291	91	96	123	248	125	108	135	193	242	184	105	227	283	186	132	144	189	175	248	137	146	114	148	169	99	116	104	237	110	159	259	261	287	111	127	
NASHVILLE, TENN.	140	180	320	59	40	61	295	354	36	114	251	290	318	24	261	307	231	8	142	298	254	275	22	150	353	333	205	63	83	65	271	50	313	291	285	305	68	103	
NEW ORLEANS, LA.	50	37	337	46	32	38	318	9	28	60	299	313	347	22	283	321	270	17	86	339	339	288	22	114	7	351	23	46	56	47	287	35	359	308	296	315	47	64	
NEW YORK, N. Y.	233	240	296	54	303	251	281	280	223	255	278	280	286	262	294	244	269	213	271	253	274	259	202	287	293	251	237	205	229	269	269	266	283	282	297	235	208		
NORFOLK, VA.	249	253	306	35	342	291	290	303	319	236	264	286	295	318	268	301	253	294	217	285	267	279	284	198	308	307	269	244	25	16	274	322	284	289	286	302	343	208	
PHILADELPHIA, PA.	233	240	298	52	317	255	283	285	289	221	255	279	283	294	263	296	246	273	212	273	255	275	263	199	292	296	252	235	49	197	270	279	269	284	282	298	235	203	
PHOENIX, ARIZONA	80	83	29	61	59	69	35	58	62	79	89	40	55	59	108	0	100	64	89	62	80	277	70	97	55	45	74	93	64	72	66	64	66	1	300	334	68	79	
PITTSBURGH, PA.	210	221	300	72	18	213	280	286	308	188	246	276	281	310	257	295	235	264	189	268	244	271	246	181	296	299	234	222	85	140	96	265	261	281	279	297	123	165	

The above table shows the great circle bearing in degrees, of various metropolitan areas in the United States in relationship to each other. This table should be used from left to right only. To find the great circle bearing between any two of the cities shown, start at the left and follow the horizontal line to the right until you come to the column directly under the name of the city that you desire to beam a radio

signal to. For all practical purposes in the United States, Polaris (the North Star), is due north. To find this star, to calibrate a directional radio beam, look for the first star on a straight line with the two outer stars on the outside edge of the cup of the big dipper. This table was compiled from information furnished by the U. S. Coast and Geodetic Survey.

# TELEGRAPHERS' ABBREVIATIONS IN CURRENT USE

— denotes short space, as in American Morse o, e; c, e; &, e.  
— denotes letters sent together, as in ar, sent .-.-.

aa	all after
ab	all before
abl	able
abt	about
ads, adr	address
adv	advise
af	Africa
aftmn	afternoon
agn	again
ahd	ahead
alng	along
am	amplitude modulation
ani	any
anr	another
ant	antenna
app	appreciate
ar	end of message
as, as m	wait, wait a minute
au	fractions follow
aw	auf wiedersehn (Ger), see you later
- B -	
b	be
b4	before
balun	balanced-to-unbalanced
bc, bcl	broadcast, broadcast listener
bcnu	be seeing you
bd	buenos dias (Sp), bad
bda	birthday
bde, bo, bth	both, as in "u5 bee", up both (Morse)
bfo	beat frequency oscillator
bjr	bon jour (Fr)
bk, bkg	back, break, black, book, breaking
bkr	breaker, circuit-breaker
bn	been, brown, between, buenas noches (Sp)
bq	answer to rq (request)
brg, brng	bearing, heading
bsr	bon soir (Fr)
btr	better
buk	book
- C -	
c	yes
cd	card, could
cd, cud, cdnt	could, couldn't
cfm, cfm	confirm, confirming
ck	check
ckt, cct	circuit
cl, clg	call, calling, closed
clbk	callbook
clix	clicks
clr	clear
cndx, cndx, cdx	conditions
cnt, cnti, cnty	count, county
cnvn	convention
coz, cos, cuz, becuz	because
cpi	copy
cq	general call to all stations
cs	call sign, call letters
cua, cuagn	see you again
cul	see you later
cum, cm, cmg	come, coming
cupla	a couple of
cw	continuous wave, manual keying
- D -	
da	day
dbl	double
dcn	direction
dct	direct
de	from
df	direction finder
dif, diff	difference
dfr, dld	dealer, deliver, delivered
dn, d	down (in frequency)
dnt, dmi	do not, don't mention it
dpe	dope, information
dr	dear
ds	thanks, danke schon (Ger)
dsnt	does not
dsw	goodbye, do svidaniya (Russian)
dunno	don't know
dx	distance, or rare station
dxpdr	dx expedition
- E -	
em	old man
eh	?
el, els	antenna element(s)
em	them
eni, enibdi, enihw	any, anybody, anyhow
ere	here
es, es	and (from Morse "&", sent . . .)
eta	estimated time of arrival
etd	estimated time of departure
eu	Europe
- F -	
fb, vfb	fine business, good (enthusiastic approval)
fd	field day, feed, food
fer	for
fiver	QSA-5
fld	field, filed
flr	floor
fm, frm	from, frequency modulation
fnd	friend, find, found
fni	funny
foxes	teleprinter test tapes
freq, fq	frequency
fwd	forward
fyi	for your information
- G -	
ga	good afternoon, go ahead
gb	good bye
gd	good day, good
ges, gess	guess
gg	going
gl	good luck

gld	glad
gn, gng	gone, green, going
gnd	ground
gotta	got to, have to, must
gp	ground plane, group (word)
grs	groups (as in msg code groups)
gud	good
gtgs	greetings
gv, gvg	give, giving
- H -	
hd, hrd	had, hard, heard
hdg	heading, antenna azimuth
hed	he would
hi	high, laughter, (sometimes !)
hlo	hello
hly	hasta la vista (Sp), see you later
hpe, hpg	hope, hoping
hpi	happy
hpn, wa hpn	happen, what happened
hq, hqtrs	headquarters
hr, hrg, hrs	here, hear, hour, hearing, here is, hours
hv, hvnt, hvg	have, haven't, having
hvi	heavy
hw, hws	how? how is?
- I -	
i?	ready? here goes the tape
id	I would
ie	clear? (response: i-go, e-wait)
im	I'm, him, intermodulation
imr	?
info	information
irpt	I repeat
- K -	
k	go ahead, end of transmission
ka	beginning of transmission (formal)
klx	clicks
klvb	que (ke) le vaya bien (Sp) "That it goes well with you"
kn	go ahead, but only the station(s) called, I will answer no other calls, known
knw	know
- L -	
lkg	looking
ll	landline, telephone or telegraph
lng	long
lotsa	lots of
lp	long path (long way around earth)
lsn	listen
ltr	letter, later
lv, lvg	leave, leaving
lw	long wave, "lone wolf" (independent DXer)
- M -	
mag, rag	magazine
mci, mci bcp	merci, merci beaucoup (Fr), thanks
mgr	manager
mi	my
mil, mill, ma	milliamperes, typewriter
min	minute, minimum
mk	mark (opposite of space)
ml, mlg	mail, mailing
mng	morning, meaning
mni	many
mnl	manual
mo	moment
msg	message
- N -	
n	no
nd	nothing doing
ng	no good
nil	nothing
nir	lazy "nil"
nm	nothing more, no more
nn	noon
no	know
nr	near, number
nvr	never
nw	now
- O -	
ob, obb	old boy
oc	old chap
ok, eek	all correct
ol	old lady
om, em	old man
op, opr	operator
opn, opg	operation, operating
ot	old timer
- P -	
pa	power amplifier
pbl, pbl	probable, preamble, probably
pctcs	practices
pd	period, paid
pd	pure dc, clean note
pkg	package, parking
plsr	pleasure
ppgn	propagation
ppl	people
prtbl	portable
pse, pls, psd	please, pleased
psbl, psbli	possible, possibly
psn, posn	position
pt, ptd, ptg	point, part, pointed, pointing
pwr	power
- Q -	
qhm	tuning from high frequency to middle of band
qlf	try sending with left foot awhile
qlm	tuning from low frequency to middle of band
qlz	operator too lazy
qmh	tuning from middle frequency to high frequency
qml	tuning from middle frequency to low frequency
qmt	try mailing your tlc
qmn	man-made electrical noise
qsl	mail card confirming qso
qslf	send card after receiving mine
qst	of interest to all amateurs

r	received
rac	rectified ac
rc	rag chew
rcd, recd	received
rcr, rcrr, rcvr, rx	receiver
rd	read (copy), red
rdi, rdy	ready
rdo	radio, radio station
re	concerning
reg, regs	regular, regulations
rito	righto
rm	room
mg	running
rockbound, rockbnd	crystal controlled, no vfo
rpt	report, repeat
rq	request
rst	readability 1-5, strength 1-9, tone 1-9
- S -	
sa, sez, sed, sa	say, says, said, South America
sae	self-addressed envelope
sase	self-addressed stamped envelope
sb, ssb	single sideband
sgd	signed
shd, shud, shudn't	should, shouldn't
sig, sigs	signal(s), signature
simo	simultaneously
sked	schedule
sl	see you later
sn	soon, seen, signal/noise
sp	short path (the closer great-circle path)
sri	sorry
ss	sweepstakes
ssn	season, as in "ssns gtgs"
str	station
su	I'll see you
sum	some
smbdi	somebody
svc	service
svl	several
sw	switch, short wave
sx	dollar sign "\$"
- T -	
tbl, trbl	trouble
tfc	traffic, messages
thr	there, their
tmw	tomorrow
tnq	tuning, thing
tnk	thank
tnsmn	transmission
tr	transit, position, there, transmit/receive
T/R	transmit/receive
trix	tricks
tt, tts	that, that is
tu, tku, tnx, tks	thank you, thanks
tv, tvi	television, television interference
twx	telegram
tx, trans	transmitter
- U -	
u, up	you, upward in frequency
ufb	vfb, very fine business (Rus)
uk	United Kingdom
ul, ud	you will, you would
undld	undelivered
unhrd	unheard
ur, urs	your, yours
ut	universal time, GMT, "Zebra" time
- V -	
va	signing off (same as sk)
vert	vertical
vfb	very fine business
vfo	variable-frequency oscillator
vjo	viejo (Sp), old man
vox	voice-operated switch
vy, vri	very
vxo	variable crystal oscillator
- W -	
w, wt	watt
wa	word after
wat, watsa	what, what do you say?
wb	word before
wd	word, would
wde	who?
wed	we would
wh	white
wid	with
wilco	will comply, will do
wk, wkg	week, weak, work, working, QSOing
wri	worry
wx, wea	weather
- X -	
xtl	crystal
xtr, xmt	transmitter
xq	fill, or repeat of unreceived copy
- Y -	
yda	yesterday
yl, xyl	young lady, married young lady
yr	year, your
- Z -	
z	Greenwich Mean Time, UT, "zebra"
zedder	New Zealander
zi	zone of the interior (continental USA)
zilch	nothing
NUMBER CODE:	
1 - a	6 - 6
2 - u	7 - b
3 - v	8 - d
4 - 4	9 - n
5 - e	0 - t
73	best wishes
88	love and kisses
99 (rare)	keep out



# ARRL Phonetic Alphabet

<b>A</b>	<b>ADAM</b>
<b>B</b>	<b>BAKER</b>
<b>C</b>	<b>CHARLIE</b>
<b>D</b>	<b>DAVID</b>
<b>E</b>	<b>EDWARD</b>
<b>F</b>	<b>FRANK</b>
<b>G</b>	<b>GEORGE</b>
<b>H</b>	<b>HENRY</b>
<b>I</b>	<b>IDA</b>
<b>J</b>	<b>JOHN</b>
<b>K</b>	<b>KING</b>
<b>L</b>	<b>LEWIS</b>
<b>M</b>	<b>MARY</b>
<b>N</b>	<b>NANCY</b>
<b>O</b>	<b>OTTO</b>
<b>P</b>	<b>PETER</b>
<b>Q</b>	<b>QUEEN</b>
<b>R</b>	<b>ROBERT</b>
<b>S</b>	<b>SUSAN</b>
<b>T</b>	<b>THOMAS</b>
<b>U</b>	<b>UNION</b>
<b>V</b>	<b>VICTOR</b>
<b>W</b>	<b>WILLIAM</b>
<b>X</b>	<b>X-RAY</b>
<b>Y</b>	<b>YOUNG</b>
<b>Z</b>	<b>ZEBRA</b>

## ON GOOD PHONE OPERATING

1. *Listen much . . . with care. Avoid distractions in your operating room. Tune the band well after each call.*
2. *Time your calls; monitor your own frequency. Call only when a station is free.*
3. *Make short calls, with breaks to listen. Speak clearly, at a steady, modest rate. Three short calls are better than one long one.*
4. *Use push-to-talk technique . . . speak near the mike. Watch the modulation indicator. Keep local background noise at a minimum.*
5. *Make notes. Avoid missing points for comment. Jot down topics to avoid repeats.*
6. *Talk in connected thoughts and phrases. Notes will help avoid mixing up subjects. Push-to-talk technique will keep brother amateurs from calling you a monologist.*
7. *Speak naturally. QSOs need not be cut and dried. Make them interesting. Avoid exhibitionism. Use proper operating form to promote efficiency in communication and add respect and prestige for your station.*

Use of this standard list is recommended by ARRL. Haphazard selection of words often results in confusion. A degree of uniformity in use of phonetic words reflects favorably on your individual operating, and on the whole amateur service.

ARRL Communications Department.

## SPECIAL ARRL QN SIGNALS FOR NET USE

QNA*	Answer in prearranged order.
QNB*	Act as relay Between . . . . . and . . . . .
QNC	All net stations Copy. I have a message for all net stations.
QND*	Net is Directed (controlled by net control station).
QNE*	Entire net please stand by.
QNF	Net is Free (not controlled).
QNG	Take over as net control station.
QNH	Your net frequency is High.
QNI	Net stations report In.* I am reporting into the net.
QNJ	Can you copy me? Can you copy . . . . . ?
QNK*	Transmit messages for . . . . . to . . . . .
QNL	Your net frequency is Low.
QNM*	You are QRMing the net. Please stand by.
QNN	Net control station is . . . . . * What station has net control?
QNO	Station is leaving the net.
QNP	Unable to copy you (or . . . . .).
QNQ*	Move frequency to . . . and wait for . . . to finish handling traffic. Then send him traffic for . . . . .
QNR*	Answer . . . and Relay (or Receive) traffic.
QNS	Following Stations are in the net.* (Follow with list). Request list of stations in the net.
QNT	Leaving net Temporarily (or for . . . minutes).
QNU*	The net has traffic for YOU. Stand by.
QNV*	Establish contact with . . . . . on this frequency. If successful, move to . . . and send him traffic for . . .
QNW	How do I route messages for . . . . . ?
QNX	You are excused from the net.* Request to be excused from the net.
QNY*	Shift to another frequency (or to . . . kc.) to clear traffic with . . . . .
QNZ	Zero beat your signal with mine.

\*For use only by Net Control Station

### Notes on the Use of QN Signals

1. The QN signals listed above are special ARRL signals for use in amateur c.w. nets only. Other meanings that may be used in other services do not apply.
2. Some QN signals are for use by net control stations only; these are marked with an asterisk (\*). Others have slightly different meanings when used by the NCS and net stations; in this case, the meaning when used by the NCS is marked with an asterisk (\*).
3. Some QN signals have two meanings, the difference depending on how or by whom used. Examples: (a) QNC, when used as a preface to transmission of a message, carries its first meaning; when used by a station reporting into the net (e.g., W9NCS DE W9NET QNI QNC), it carries its second meaning. (b) QNI, when used by the NCS, is a request for stations to report in; when used by a net station, it means that this station is reporting in. (c) QNJ, when used alone, carries its first meaning; when followed by a call, it carries the second meaning.
4. QN signals are never followed by a question mark, even though the meaning may be interrogatory.
5. Do not use QN signals on phone nets. Say it with words.
6. Use QN signals in nets only. They are not for use in casual amateur conversation.
7. Make frequent use of standard international "Q" signals in traffic nets, for meanings not covered by QN signals. Examples: QRU, QRV, QSV, QTA, QTB, QTX, etc.

ARRL Communications Department

## FEDERAL COMMUNICATIONS COMMISSION EXAMINATION POINTS

Examinations for commercial and amateur radio operator licenses are conducted at the following F.C.C. field offices on the days designated by the Engineer in Charge of each office. Specific dates should be obtained from the Engineer in Charge.

Dist. No.	Office Location
1 -	BOSTON, MASSACHUSETTS 02109 1600 Customhouse
2 -	NEW YORK, NEW YORK 10014 748 Federal Building, 641 Washington Street
3 -	PHILADELPHIA, PENNSYLVANIA 19106 1005 New U. S. Customhouse
4 -	BALTIMORE, MARYLAND 21202 415 U. S. Customhouse, Gay and Water Streets
5 -	NORFOLK, VIRGINIA 23510 405 Federal Building
6 -	ATLANTA, GEORGIA 30303 2010 Atlanta Merchandise Mart, 240 Peachtree St, NE
6S -	SAVANNAH, GEORGIA 31402 238 Post Office Building, Box 77
7 -	MIAMI, FLORIDA 33101 51 S. W. First Av., Room 919
7T -	TAMPA, FLORIDA 33602 759 Federal Office Bldg, 500 Zack Street
8 -	NEW ORLEANS, LOUISIANA 70130 608 Federal Office Building, 600 South Street
8M -	MOBILE, ALABAMA 36602 439 U. S. Court & Customhouse
9 -	HOUSTON, TEXAS 77002 5636 New Federal Office Building, 515 Rusk Avenue
9B -	BEAUMONT, TEXAS 77704 301 Post Office Building, 300 Willow Street
10 -	DALLAS, TEXAS 75202 1314 Wood Street, Room 707
11 -	LOS ANGELES, CALIFORNIA 90014 Room 50 Mezzanine Floor, 849 South Broadway
11SD -	SAN DIEGO, CALIFORNIA 92101 Fox Theatre Building, 1245 Seventh Avenue
12 -	SAN FRANCISCO, CALIFORNIA 94126 323A Customhouse, 555 Battery Street
13 -	PORTLAND, OREGON 97205 441 New U. S. Courthouse, 620 S. W. Main Street
14 -	SEATTLE, WASHINGTON 98104 806 Federal Office Building, 1st Avenue and Marion St.
15 -	DENVER, COLORADO 80202 521 New Customhouse, 19th bet. California and Stout St.
16 -	ST. PAUL, MINNESOTA 55102 208 Federal Courts Building, 6th and Market Streets
17 -	KANSAS CITY, MISSOURI 64106 3100 Federal Office Building, 911 Walnut Street
18 -	CHICAGO, ILLINOIS 60604 1872 U.S. Courthouse, 219 S Dearborn St.
19 -	DETROIT, MICHIGAN 48226 1029 Federal Building
20 -	BUFFALO, NEW YORK 14203 328 Post Office Building, Ellicott and Swan Streets
21 -	HONOLULU, HAWAII 96808 502 Federal Building, 335 South King Street
22 -	SAN JUAN, PUERTO RICO 00903 322-323 U.S. Post Office & Courthouse
23 -	ANCHORAGE, ALASKA 99501 55 U. S. Post Office Building, Box 644
24 -	WASHINGTON, D.C. 20555 1101 Pennsylvania Avenue N.W., Room 10110

# STANDARD TIME THROUGHOUT THE WORLD

The standard time system is based on the theoretical division of the surface of the globe into 24 zones, each of 15° of longitude. The initial zone is the one which has as its central meridian the Greenwich Meridian and with the meridians 7° 30' E. and 7° 30' W. as its eastern and western limits. Time in this zone is called Greenwich Mean Time, or GMT. Places to the east of Greenwich have faster time than Greenwich, while places to the west have slower time. Not all countries follow the International Time Zone System, but some use the time of some principal city as a standard and others have no standard time.

The theoretical system described is applied, in a strict sense, only in oceanic regions. On land or on groups of islands the system is applied with certain local deviations, which, are rendered necessary by frontiers, convenience of an entire island group to maintain same zone time, etc. The time used in each country, whether it is the time of the corresponding zone or modified for reasons given, is an hour fixed by law and, for this reason, is called legal time, or more generally standard time.

Another deviation from this theoretical system is that certain countries, for economic reasons, modify their legal time for part of the year, especially in summer, by advancing it an hour or another fraction of time. Where such deviations are maintained on a year-round basis, the time kept is considered to be standard time.

Reference - "Standard Time Chart of the World" No. 5192, published by U. S. Navy Hydrographic Office, Washington, D.C.

Country	Standard or Local Time Hours fast or slow of GMT	Time at 1200 hrs. GMT
Aden, Khamran, Socotra Is.	+ 3	15 00
Afghanistan	+ 4 1/2	16 30
Alaska, Juneau, Ketchikan, Sitka.	- 8	04 00
Yakutat.	- 9	03 00
Central part, Kodiak Is.	- 10	02 00
West coast, Aleutian Is.	- 11	01 00
Albania	+ 1	13 00
Algeria	+ 1	13 00
Amsterdam, St. Paul, Kerguelen Is.	+ 5	17 00
Andorra	+ 1	13 00
Angola	+ 1	13 00
Argentina	- 4	08 00
Ascension Is, St. Helena Is.	0	12 00
Australia, Western Australia.	+ 8	20 00
Northern Territory, South Australia.	+ 9 1/2	21 30
New South Wales, Queensland, Victoria, Lord Howe Is, Tasmania Is.	+ 10	22 00
Austria	+ 1	13 00
Azores Is.	- 2	10 00
Bahama Is.	- 5	07 00
Bahrain Is.	+ 4	16 00
Baker, Canton, Enderbury, Howland & Phoenix Is.	- 11	01 00
Basutoland	+ 2	14 00
Bechuanaland	+ 2	14 00
Belgium	+ 1	13 00
Bermuda Is.	- 4	08 00
Bhutan	+ 5 1/2	17 30
Bolivia	- 4	08 00
Bonin, Volcano, Mariana, Saipan, Tinian, Guam Is.	+ 10	22 00
Borneo (Indonesia)	+ 7 1/2	19 30
Brazil, Fernando Noronha, Trindade & Martim Vaz Is.	- 2	10 00
East of 52°30' W (approx.)	- 3	09 00
Amazonas, Matto Grosso	- 4	08 00
Acre Territory	- 5	07 00
British Honduras	- 5 1/2	06 30
British Isles	0	12 00
British Phoenix Is.	- 11	01 00
Brunei	+ 8	20 00
Bulgaria	+ 2	14 00
Burma	+ 6 1/2	18 30
Burundi	+ 2	14 00
Cambodia	+ 7	19 00
Cameroun	+ 1	13 00
Canada, Belle Isle, Labrador, Newfoundland.	- 3 1/2	08 30
Anticosti Is, Cape Breton Is, Magdalen Is, New Brunswick, Nova Scotia, Prince Edward Is, Quebec (E of 68°W), Sable Is., Melville Peninsula (east), Ontario (E of 90°W), Quebec (W of 68°W), Southampton Is., Manitoba, Ontario (W of 90°W), Melville Peninsula (west), N. W. Territories (east)...	- 4	08 00
Alberta, Saskatchewan, N. W. Territories (middle)...	- 5	07 00
British Columbia, N. W. Territories (west)...	- 6	06 00
Yukon	- 8	04 00
Arctic Is*	- 9	03 00
Canal Zone	- 5	07 00
Canary Is.	0	12 00
Cape Verde Is.	- 2	10 00
Caroline Is, Western	+ 9	21 00
Eastern	+ 11	23 00
Cayman Is.	- 5	07 00
Celebes Is. (Indonesia)	+ 8	20 00
Central African Republic	+ 1	13 00
Ceylon Is.	+ 5 1/2	17 30
Chad	+ 1	13 00
Chagos Is.	+ 5	17 00
Chatham Is.	+ 12 3/4	00 45
Chile, Juan Fernandez Is.	- 4	08 00
China, Western part.	+ 5	17 00
Mid-western part.	+ 6	18 00
Mid-eastern part.	+ 7	19 00
Eastern part.	+ 8	20 00
Christmas Is.	+ 7	19 00
Clipperton Is.	- 7	05 00
Cocos-Keeling Is.	+ 6 1/2	18 30
Colombia, San Andres & Providencia Is.	- 5	07 00
Comora Is.	+ 3	15 00
Congo, Republic of (Brazzaville)	+ 1	13 00
Congo, Republic of the (Leopoldville), western part.	+ 1	13 00
Eastern part.	+ 2	14 00
Cook Is.	- 10 1/2	01 30
Costa Rica, Cocos Is.	- 6	06 00
Crozet Is.	+ 3	15 00
Cuba	- 5	07 00
Cyprus Is.	+ 2	14 00
Czechoslovakia	+ 1	13 00
Dahomey	+ 1	13 00
Das Is.	+ 4	16 00
Denmark	+ 1	13 00
Dominican Republic	- 5	07 00
Easter Is.	- 7	05 00
Ecuador, Galapagos Is.	- 5	07 00
Egypt	+ 2	14 00
El Salvador	- 6	06 00
Ethiopia	+ 3	15 00

Country	Standard or Local Time Hours fast or slow of GMT	Time at 1200 hrs. GMT
Faeroe Is.	0	12 00
Falkland Is.	- 4	08 00
Fanning & Line Is.	- 10	02 00
Fiji Is.	+ 12	24 00
Finland, Aland Is.	+ 2	14 00
France, Corsica	+ 1	13 00
French Polynesia	- 10	02 00
Gabon	+ 1	13 00
Gambia	0	12 00
Germany	+ 1	13 00
Ghana	0	12 00
Gibraltar	+ 1	13 00
Gilbert & Ellice Is.	+ 12	24 00
Goa	+ 5 1/2	17 30
Greece, Crete, Dodecanese Is.	+ 2	14 00
Greenland, western	- 4	08 00
Guantanamo Bay	- 5	07 00
Guatemala	- 6	06 00
Guiana, British	- 3 3/4	08 15
Guiana, French	- 4	08 00
Guinea, Portuguese	- 1	11 00
Guinea, Republic of	0	12 00
Haiti	- 5	07 00
Hawaii	- 10	02 00
Heard Is.	+ 5	17 00
Honduras	- 6	06 00
Hong Kong	+ 8	20 00
Hungary	+ 1	13 00
Iceland	- 1	11 00
India, Andaman & Nicobar, Laccadive Is.	+ 5 1/2	17 30
Iran	+ 3 1/2	15 30
Iraq	+ 3	15 00
Ireland	0	12 00
Israel	+ 2	14 00
Italy, Sardinia, Sicily	+ 1	13 00
Ivory Coast	0	12 00
Jamaica	- 5	07 00
Jan Mayen Is.	- 1	11 00
Japan	+ 9	21 00
Jarvis & Palmyra Is.	- 10	02 00
Java (Indonesia)	+ 7 1/2	19 30
Johnston Is.	- 11	01 00
Jordan	+ 2	14 00
Kenya	+ 3	15 00
Korea	+ 9	21 00
Kuwait	+ 3	15 00
Laos	+ 7	19 00
Lebanon	+ 2	14 00
Liberia	- 3/4	11 15
Libya	+ 2	14 00
Liechtenstein	+ 1	13 00
Luxembourg	+ 1	13 00
Macao	+ 8	20 00
Macquarie Is.	+ 11	23 00
Madeira Is.	- 1	11 00
Malagasy Republic (Madagascar Is.)	+ 3	15 00
Malawi (Nyasaland)	+ 2	14 00
Malaysia	+ 7 1/2	19 30
Maldives Is.	+ 5	17 00
Mali Republic	0	12 00
Malta	+ 1	13 00
Manchuria	+ 8	20 00
Manihiki Is.	- 11	01 00
Marshall Is, Wake Is.	+ 12	24 00
Mauritania	0	12 00
Mauritius & Rodriguez Is.	+ 4	16 00
Mexico, east of states of Sonora, Sinaloa & Nayarit	- 6	06 00
Sonora, Sinaloa, Nayarit, Baja California (south of 28°N), Revillagigedo Is.	- 7	05 00
Baja California (north of 28°N)	- 8	04 00
Midway Is.	- 11	01 00
Molucca Is. (Indonesia)	+ 8 1/2	20 30
Monaco	+ 1	13 00
Mongolia*	0	12 00
Morocco	0	12 00
Mozambique	+ 2	14 00
Muscat & Oman	+ 4	16 00
Nauru Is, Norfolk Is.	+ 11 1/2	23 30
Navassa Is.	- 5	07 00
Nepal	+ 5 1/2	17 30
Netherlands	+ 1	13 00
Netherlands Antilles	- 4 1/2	07 30
New Caledonia Is, New Hebrides Is.	+ 11	23 00
New Guinea N.E., Papua	+ 10	22 00
New Zealand, Kermadec Is.	+ 12	24 00
Nicaragua	- 6	06 00
Niger	0	12 00
Nigeria	+ 1	13 00
Niue & Aitutaki Is.	- 11 1/3	00 40
Norway, Svalbard Is.	+ 1	13 00

Country	Standard or Local Time Hours fast or slow of GMT	Time at 1200 hrs. GMT
Pakistan, West.	+ 5	17 00
East.	+ 6	18 00
Panama	- 5	07 00
Paraguay	- 4	08 00
Peru	- 5	07 00
Philippines	+ 8	20 00
Pitcairn Is.	- 10	02 00
Poland	+ 1	13 00
Portugal	0	12 00
Prince Edward & Marion Is.	+ 3	15 00
Puerto Rico	- 4	08 00
Qatar	+ 4	16 00
Reunion Is.	+ 4	16 00
Rhodesia, Southern	+ 2	14 00
Rio Muni	+ 1	13 00
Rumania	+ 2	14 00
Rwanda	+ 2	14 00
Ryukyu Is. (Okinawa)	+ 9	21 00
Sabah, Sarawak (Malaysia)	+ 8	20 00
St. Pierre & Miquelon Is.	- 3	09 00
Samoa Is.	- 11	01 00
San Marino	+ 1	13 00
Sao Tome & Principe Is.	0	12 00
Sarawak	+ 8	20 00
Saudi Arabia**	0	12 00
Senegal	0	12 00
Serrana Bank & Roncador Cay	- 5	07 00
Seychelles Is.	+ 4	16 00
Sierra Leone	0	12 00
Sikkim	+ 5 1/2	17 30
Singapore	+ 7 1/2	19 30
Solomon Is.	+ 11	23 00
Somali Republic	+ 3	15 00
Somaliiland, French	+ 3	15 00
South Africa	+ 2	14 00
South Georgia Is, South Sandwich Is.	- 2	10 00
South Shetland Is, South Orkney Is*	+ 2	14 00
South-West Africa	+ 2	14 00
Spain, Balearic Is, Ceuta & Melilla	+ 1	13 00
Spanish Sahara (Rio de Oro)	0	12 00
Sudan	+ 2	14 00
Sumatra Is. (Indonesia), west.	+ 6 1/2	18 30
East.	+ 7	19 00
Surinam (Netherlands Guiana)	- 3 1/2	08 30
Swan Is.	- 6	06 00
Swaziland	+ 2	14 00
Sweden	+ 1	13 00
Switzerland	+ 1	13 00
Syria	+ 2	14 00
Taiwan (Formosa)	+ 8	20 00
Tanganyika	+ 3	15 00
Thailand	+ 7	19 00
Tibet	+ 6	18 00
Timor Is.	+ 8	20 00
Togo	0	12 00
Tokelau Is.	- 11	01 00
Tonga (Friendly) Is.	+ 12 1/3	00 20
Tristan de Cunha & Gough Is.	0	12 00
Tromelin Is.	+ 4	16 00
Trucial Oman	+ 4	16 00
Tunisia	+ 1	13 00
Turkey	+ 2	14 00
Uganda	+ 3	15 00
United States of America, Eastern time.	- 5	07 00
Central time.	- 6	06 00
Mountain time.	- 7	05 00
Pacific time.	- 8	04 00
Upper Volta	0	12 00
Uruguay	- 3	09 00
U. S. S. R., Estonia, Latvia, Lithuania, Karelo-Finnish, White Russia, Ukraine, Moldavia, European Russia.	+ 3	15 00
Georgia, Armenia, Azerbaïdjan.	+ 4	16 00
Kazakh, Uzbek, Turkmen, Tadzhik.	+ 5	17 00
Kirghiz, West Siberian region.	+ 6	18 00
Approx. 82°30' to 97°30' W.	+ 7	19 00
Buryat, East Siberian region	+ 8	20 00
Approx. 112°30' to 127°30' W.	+ 9	21 00
Kuril Is, Sakhalin Is.	+ 10	22 00
Approx. 142°30' to 157°30' W.	+ 11	23 00
Approx. 157°30' to 172°30' W.	+ 12	24 00
Approx. 172°30' W. to coast.	+ 13	01 00
Venezuela	- 4	08 00
Vietnam	+ 8	20 00
Wallis & Futuna Is.	+ 12	24 00
West Irian (Netherlands New Guinea)	+ 9 1/2	21 30
West Indies, Barbados, Trinidad, Tobago, Guadeloupe, Martinique, Leeward Is, Windward Is.	- 4	08 00
Yemen**	0	12 00
Yugoslavia	+ 1	13 00
Zambia (Northern Rhodesia)	+ 2	14 00
Zanzibar Is.	+ 3	15 00

\* No definite standard time used.

\*\* "Arabic Time", i.e. daily all watches are set to midnight at sundown.



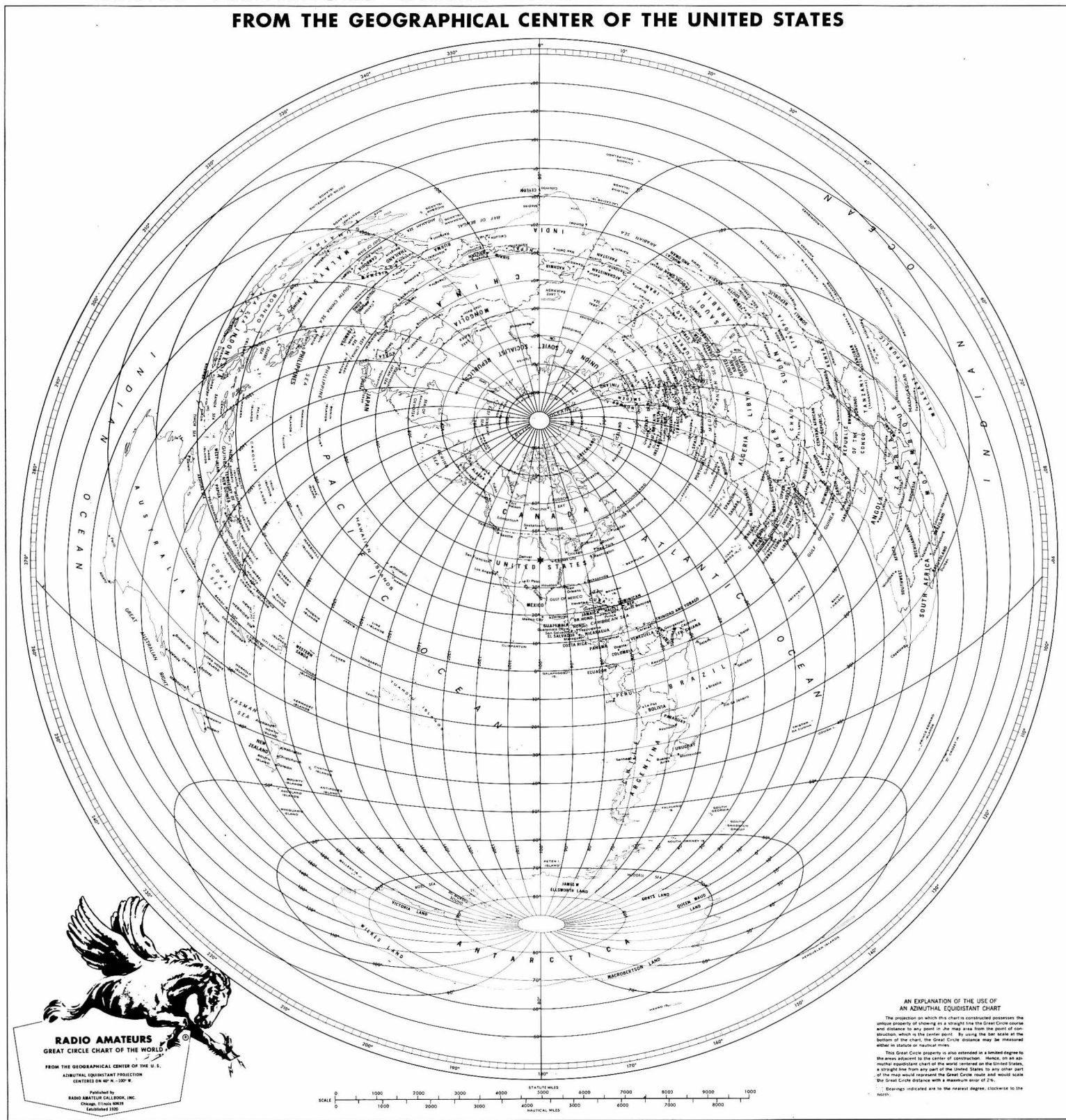
# THE GEOGRAPHICAL CENTER OF THE UNITED STATES

The table below shows the great circle bearing in degrees from the point indicated above to countries throughout the world having licensed radio amateurs. Where cities are shown the bearing to the nearest degree is given. These bearings were compiled from information supplied by the U. S. Coast and Geodetic Survey.

PREFIX	COUNTRY	BEARING	PREFIX	COUNTRY	BEARING	PREFIX	COUNTRY	BEARING
AC3	SIKKIM	353	KS6	U S SAMOA	248	VQ8	CHAGOS IS.	17
AC4	TIBET, LHASA	351	KV4	VIRGIN IS.	117		MAURITIUS & RODRIGUEZ IS.	53
AC5	BHUTAN	351	KW6	WAKE IS.	288	VQ9	SEYCHELLES IS.	40
AP	PAKISTAN, KARACHI	14	KX6	MARSHALL IS.	280	VR1	GILBERT, ELLICE & OCEAN IS.	270
BV	TAIWAN, TAIPEI	323	KZ5	CANAL ZONE	145	VR2	FIJI IS.	252
BY	CHINA, CHUNGKING	337	LA	NORWAY, OSLO	32	VR3	FANNING & LINE IS.	253
	PEKING	334		SVALBARD IS.	13	VR4	SOLOMON IS.	270
	SHANGHAI	326		JAN MAYEN IS.	24	VR5	TONGA IS.	245
CE	CHILE, SANTIAGO	156	LU	ARGENTINA, BUENOS AIRES	148	VR6	PITCAIRN IS.	210
CE0A	EASTER IS.	190	LX	LUXEMBOURG	42	VS5	BRUNEI	317
CE0Z	JUAN FERNANDEZ IS.	163	LZ	BULGARIA, SOFIA	39	VS6	HONG KONG	328
CM,CO	CUBA, HAVANA	136	MP4	MUSCAT & OMAN, MASQAT	23	VS9	ADEN, ADEN	41
CN	MOROCCO, CASABLANCA	62	OA	PERU, LIMA	154	VU	INDIA, BOMBAY	9
CP	BOLIVIA, LA PAZ	147	OD5	LEBANON, BEIRUT	37		CALCUTTA	353
CR3	PORTUGUESE GUINEA	85	OE	AUSTRIA, VIENNA	39		NEW DELHI	4
CR4	CAPE VERDE IS.	87	OH	FINLAND, HELSINKI	26	VU4	LACCADIVE IS.	10
CR6	ANGOLA, NOVA LISBOA	84	OH0	ALAND IS.	38	VU5	ANDAMAN & NICOBAR IS.	346
CR7	MOZAMBIQUE, LOURENCO MARQUES	86	OK	CZECHOSLOVAKIA, PRAGUE	38	XE	MEXICO, MEXICO CITY	182
	MOZAMBIQUE	67	ON	BELGIUM, BRUSSELS	42	XE4	REVILLAGIGEDO IS.	211
		9	OX	GREENLAND, GODTHAAB	32	XW8	LAOS	338
CR8	GOA	296	OY	FAERGE IS.	35	XZ	BURMA, RANGOON	343
CR8	TIMOR IS.	328	OZ	DENMARK, COPENHAGEN	40	YA	AFGHANISTAN, KANDAHAR	14
CR9	MACAO	59	PA,PI	NETHERLANDS, AMSTERDAM	128	YI	IRAQ, BAGHDAD	31
CT1	PORTUGAL, LISBON	67	PJ	NETHERLANDS ANTILLES	115	YJ	NEW HEBRIDES, VILLA	261
CT2	AZORES IS.	68	PJ2M	SINT MAARTEN	50	YK	SYRIA	155
CT3	MADEIRA IS.	146	PX1	ANDORRA	129	YN	NICARAGUA, MANAGUA	36
CX	URUGUAY, MONTEVIDEO	41	PY	BRAZIL, BRASÍLIA	130	YO	RUMANIA, BUCHAREST	160
DJ,DL	WEST GERMAN FEDERAL REP, BONN	37		RIO DE JANEIRO	112	YS	EL SALVADOR, SAN SALVADOR	39
DM	E. GERMAN DEMOCRATIC REP, BERLIN	317		NATAL	118	YT,YU	YUGOSLAVIA, BELGRADE	127
DU	PHILIPPINES, MANILA	55	PY0	TRINDADE & MARTIM VAZ IS.	119	YV	VENEZUELA, CARACAS	42
EA	SPAIN, MADRID	53	PZ	SURINAM	29	ZA	ALBANIA, TIRANA	59
EA6	BALEARIC IS.	70	SL,SM	SWEDEN, STOCKHOLM	34	ZB2	GIBRALTAR	85
EA8	CANARY IS.	70	SP	POLAND, WARSAW	50	ZD3	GAMBIA	88
EA9	SPANISH SAHARA	43	ST	SUDAN, KHARTOUM	42	ZD5	SWAZILAND	101
EA0	RIO MUNI	87	SU	EGYPT, CAIRO	42	ZD7	SAINT HELENA	100
EI	IRELAND, DUBLIN	24	SV	GREECE, ATHENS	35	ZD8	ASCENSION IS.	122
EL	LIBERIA, MONROVIA	49	SV5	DODECANESE IS.	162	ZD9	TRISTAN DA CUNHA & GOUGH IS.	78
EP,EQ	IRAN, TEHRAN	44	TA,TC	TURKEY, ANKARA	153	ZE	SOUTHERN RHODESIA, SALISBURY	235
ET3	ETHIOPIA, ADDIS ABABA	143	TF	ICELAND, REYKJAVIK	74	ZK1	COOK IS.	244
	ASMARA	47	TG	GUATEMALA, GUATEMALA CITY	68	ZK2	NIUE IS.	238
F	FRANCE, PARIS	58	TI	COSTA RICA	78	ZL1	NEW ZEALAND, AUCKLAND	235
F88	AMSTERDAM AND ST. PAUL IS.	116	TJ	CAMEROUN, YAOUNDE	78	ZL2	WELLINGTON	233
FC	CORSICA	61	TL8	CENTRAL AFRICAN REP, BANGUI	65	ZL3	CHRISTCHURCH	232
FG7	GUADELOUPE	117	TN8	REPUBLIC OF CONGO, BRAZZAVILLE	83	ZL4	DUNEDIN	142
FH8	COMORO IS.	230	TR8	GABON, LIBREVILLE	80	ZP	PARAGUAY, ASUNCION	104
FR8	NEW CALEDONIA, NOUMEA	201	TT8	CHAD, FT. LAMY	23	ZS	SOUTH AFRICA, CAPE TOWN	90
FL8	FRENCH SOMALILAND, DJIBOUTI	63	TU2	IVORY COAST, ABIDJAN	30		DURBAN	117
FM7	MARTINIQUE	115	TZ	MALI REPUBLIC, BAMAKO	30	ZS2	PRINCE EDWARD & MARION IS.	93
FO8	FRENCH POLYNESIA, TAHITI	258	UA1	SOVIET UNION, MOSCOW	26	ZS3	SOUTH-WEST AFRICA, WINDHOEK	94
	CLIPPERTON IS.	118	UA9,0	ASIATIC RUSSIAN S.F.S.R.	27	ZS8	BASUTOLAND	91
FB8	ST. PIERRE & MIQUELON IS.	43	UB5	UKRAINIAN S.S.R.	18	ZS9	BECHUANALAND, MAFEKING	47
FR7	REUNION IS.	46	UC2	WHITE RUSSIAN S.S.R.	11	3A2	MONACO	50
FS7	SAINT MARTIN IS.	42	UD6	AZERBAIDZHAN S.S.R.	10	3V8	TUNISIA, TUNIS	329
FU8	NEW HEBRIDES, VILA	40	UF6	GEORGIAN S.S.R.	5	3W8	VIETNAM, SAIGON	2
FW8	WALLIS & FUTUNA IS.	42	UG6	ARMENIAN S.S.R.	38	4S7	CEYLON, COLOMBO	40
FV7	FRENCH GUIANA, CAYENNE	46	UH8	TURKMEN S.S.R.	13	4W1	YEMEN	38
G	ENGLAND, LONDON	40	UI8	UZBEK S.S.R.	19	4X4	ISRAEL	52
GC	CHANNEL IS.	44	UJ8	TADZHIK S.S.R.	33	5A	LIBYA, TRIPOLI	38
GD	ISLE OF MAN	44	UL7	KAZAKH S.S.R.	30	5B4,ZC4	CYPRUS	60
GI	NORTHERN IRELAND, BELFAST	44	UM8	KIRGHIZ S.S.R.	30	5H3	TANZANIA, DAR ES SALAAM	77
GM	SCOTLAND, GLASGOW	43	UN1	KARELO-FINNISH S.S.R.	29	5N2	NIGERIA, LAGOS	64
GW	WALES	45	UO5	MOLDAVIAN S.S.R.	27	5R8	MALAGASY REPUBLIC, TANANARIVE	80
HA,HG	HUNGARY, BUDAPEST	150	UP	LITHUANIAN S.S.R.	68	5T5	MAURITANIA, NOUAKCHOTT	73
HB	SWITZERLAND, BERN	126	UQ	LATVIAN S.S.R.	65	5U7	NIGER, NIAMEY	249
HB0	LIECHTENSTEIN	122	UR	ESTONIAN S.S.R.	5	5V	TOGO	58
HC	ECUADOR, QUITO	141	VE1	CANADA, HALIFAX	329	5W1	WESTERN SAMOA	47
HC8	GALAPAGOS IS.	146	VE2	MONTREAL	307	5X5	UGANDA	84
HH	HAITI, PORT-AU-PRINCE	156	VE3	TORONTO	329	5Z4	KENYA, NAIROBI	133
HI	DOMINICAN REP, SANTO DOMINGO	338	VE4	WINNIPEG	252	60	SOMALI REPUBLIC, MOGADISHU	86
HK	COLOMBIA, BOGOTA	45	VE5	SASKATOON	253	6W8	SENEGAL, DAKAR	72
HK0	SAN ANDRES & PROVIDENCIA IS.	42	VE6	EDMONTON	251	6Y5	JAMAICA	54
HM,HL9	KOREA, SEOUL	45	VE7	VANCOUVER	257	7G1	REPUBLIC OF GUINEA, CONAKRY	40
HP	PANAMA	48	VE8	FORT NELSON	244	7Q7	MALAWI, ZOMBA	319
HR	HONDURAS, TEGUCIGALPA	316	VK1	AUSTRALIA, CANBERRA	275	7X	ALGERIA, ALGIERS	326
HS	THAILAND, BANGKOK	343	VK2	SYDNEY	288	7Z,HZ	SAUDI ARABIA, MECCA	307
HV	VATICAN CITY	289	VK3	MELBOURNE	249	8F1,2,3	JAVA, BATAVIA	312
I	ITALY, ROME	262	VK4	BRISBANE	278	8F4	SUMATRA	307
	TRIESTE	130	VK5	ADELAIDE	226	8F5	BORNEO	333
IS	SARDINIA	294	VK6	PERTH	155	8F6	CELEBES & MOLUCCA IS.	328
IT	SICILY	308	VK7	TASMANIA, HOBART	120	9A1,M1	SAN MARINO	315
JA	JAPAN, TOKYO	268	VK8	DARWIN	117	9G1	GHANA, ACCRA	320
JT1	MONGOLIA, ULAN BATOR	322	VK9	NORFOLK IS.	123	9H1	MALTA	356
JY	JORDAN	286		NEW GUINEA, PAPUA, PORT MORESBY	147	9J	ZAMBIA, LUSAKA	78
JZ0	WEST IRIAN	119		HEARD IS.	156	9K2	KUWAIT	86
KB6	BAKER IS.	319		MACQUARIE IS.	45	9L1	SIERRA LEONE, FREETOWN	333
KC4	NAVASSA IS.	298	V01	NEWFOUNDLAND, ST JOHNS	155	9M2	FEDERATION OF MALAYSIA	328
KC6	CAROLINE IS.	308	V02	LABRADOR, HOPEDALE	121	9M4	SINGAPORE	315
KG4	GUANTANAMO BAY, CUBA	298	VP1	BRITISH HONDURAS	120	9M8	SABAH, NORTH BORNEO	320
KG6	MARIANAS IS, GUAM	268	VP2	ANTIGUA	117	9N1	SARAWAK	356
KG6I	VOLCANO IS.	322	VP3	BRITISH GUIANA, GEORGETOWN	147	9Q5	NEPAL, KATMANDU	78
KG6S	SAIPAN IS.	286	VP5	TURKS & CAICOS IS.	155		REP. OF THE CONGO, LEOPOLDVILLE	66
KH6	HAWAII, HONOLULU	119	VP6	BARBADOS	95		ELISABETHVILLE	75
KL7	ALASKA, ANCHORAGE	146	VP7	BAHAMA IS.	60		STANLEYVILLE	65
	FAIRBANKS		VP8	FALKLAND IS.				
KM6	MIDWAY IS.			SOUTH GEORGIA IS.		9U5	BURUNDI	65
KP4	PUERTO RICO			SOUTH ORKNEY IS.		9X5	RWANDA	65
KR6,8	RYUKYU IS, OKINAWA		VP9	BERMUDA IS.		9Y4,VP4	TRINIDAD & TOBAGO IS.	121
KS4	SWAN IS.		V01	ZANZIBAR				

# RADIO AMATEURS GREAT CIRCLE CHART OF THE WORLD

## FROM THE GEOGRAPHICAL CENTER OF THE UNITED STATES





# Reduce your risk of Heart Attack!



## CONTROL HIGH BLOOD PRESSURE

The higher your blood pressure, the greater your risk of heart attack and stroke.



## WATCH YOUR DIET

A diet rich in saturated fats and cholesterol increases your chances of heart attack.



## KEEP YOUR WEIGHT NORMAL

If you're 30% over normal weight, you run twice the risk of heart attack in middle age.



## KEEP PHYSICALLY FIT

Exercise regularly and moderately. Physically active people have a lower heart attack risk.



## DON'T SMOKE CIGARETTES

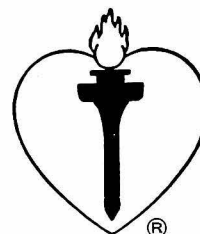
Heavy cigarette smokers get coronary disease at a rate 2 to 3 times higher than non-smokers.



## SEE YOUR DOCTOR REGULARLY

Only he can help control blood pressure and advise on weight, exercise and the diet for you.

# GIVE...so more will live HEART FUND



*Contributed by the Publisher*

# Z-CODE FOR POINT-TO-POINT SERVICE

**Asterisk indicates U. S. Military Usage**

NOTE: Numbers 1-5 following the "Z" signal mean:

1. Very slight
2. Slight
3. Moderate
4. Severe
5. Extreme

- A -

\*ZAA YOU ARE NOT OBSERVING CIRCUIT DISCIPLINE.  
 \*ZAB YOUR SPEED KEY IMPROPERLY ADJUSTED.  
 ZAC Advise (Call sign of) frequency you are reading.  
 \*ZAC Cease using speed key.  
 \*ZAD Signal (1) Not understood (2) Not held.  
 \*ZAE Unable to receive you, try via \_\_\_\_\_.  
 \*ZAF Reroute the circuit by patching.  
 \*ZAH Unable to relay. We file.  
 \*ZAI Run (foxes, RY's, mk, etc.)  
 \*ZAJ Have been unable to break you.  
 ZAL Alter your wave-length.  
 \*ZAL Closing down, due to \_\_\_\_\_.  
 ZAN WE CAN RECEIVE ABSOLUTELY NOTHING.  
 \*ZAN Transmit only msgs of above precedence  
 \*ZAO CAN'T UNDERSTAND VOICE. USE TELEGRAPH.  
 ZAP ACKNOWLEDGE, PLEASE.  
 \*ZAP Work (simplex, duplex, mux, sb).  
 \*ZAR Last word received (sent) was \_\_\_\_\_.  
 ZAR Revert to Automatic Relay.  
 \*ZAS Rerun tapes run on \_\_\_\_\_ since \_\_\_\_\_.  
 \*ZAT Punching tape for transmission.  
 \*ZAV Send blind until advised.  
 \*ZAY Send on (kcs). Will confirm later.  
 \*ZAX You are causing interference.

- B -

\*ZBA Cause of delay is \_\_\_\_\_.  
 \*ZBD Following was sent (time).  
 \*ZBE Retransmit message \_\_\_\_\_ to \_\_\_\_\_.  
 \*ZBG You are sending upper case.  
 \*ZBH Make call before transmitting traffic.  
 \*ZBI Listen for telephony.  
 \*ZBL Do not use break-in.  
 \*ZBM Put \_\_\_\_\_ (speed opr.) this frequency.  
 ZBN Break and go ahead with New slip.  
 \*ZBN Your tape-reversed.  
 \*ZBO I HAVE TRAFFIC.  
 \*ZBP (1) Characters indistinct (2) Spacing bad.  
 \*ZBQ When & on what frequency was message received.  
 ZBR Break circuit. Retuning.  
 \*ZBR Shall I send by (method).  
 ZBS Blurring Signals (1) Dots heavy (2) Dots light.  
 \*ZBT Count \_\_\_\_\_ as \_\_\_\_\_ groups.  
 \*ZBU Report when in communication with \_\_\_\_\_.  
 \*ZBV Answer on \_\_\_\_\_ mc.  
 \*ZBW I shift (or ask \_\_\_\_\_) to (kcs).  
 ZBY Pull Back your tape one Yard.

- C -

ZCA Circuit Affected. Make readable signals.  
 ZCB Circuit Broken. Signal unheard.  
 ZCC Collate Code.  
 ZCD Your Collation is Different.  
 ZCF CHECK YOUR CENTER FREQUENCY, PLEASE.  
 ZCI Circuit Interrupted. Running & available.  
 ZCK Check Keying.  
 ZCL TRANSMIT CALL LETTERS INTELLIGIBLY.  
 ZCO Your Collation Omitted.  
 ZCP Conditions Poor, increase to maximum.  
 ZCR Using concentrator. Make warning signals.  
 ZCS Cease Sending.  
 ZCT Send Code Twice.  
 ZCW Are you in direct Communication With \_\_\_\_\_?

- D -

\*ZDA Hr. formal message, priority \_\_\_\_\_.  
 \*ZDB Expedite reply to my \_\_\_\_\_.  
 ZDC Diagnosing Circuit faults, will advise.  
 ZDE Message undelivered. (1) Will keep trying  
 (2) Advise disposal (3) Cancelling (4) Btr. ad's.  
 \*ZDE Message \_\_\_\_\_ undelivered.  
 \*ZDF Frequency is Drifting to degree indicated, 1-5.  
 \*ZDF Message \_\_\_\_\_ received by addressee (time).  
 \*ZDG Accuracy of following doubtful.  
 ZDH Your Dots are too Heavy (long).  
 ZDL Your Dots are too Light (short).  
 ZDM Your Dots Missing.  
 \*ZDM This is a multiple-address message.  
 \*ZDN Report disposal of message \_\_\_\_\_.  
 \*ZDQ Message \_\_\_\_\_ relayed to \_\_\_\_\_ at \_\_\_\_\_ by \_\_\_\_\_.  
 \*ZDS Msg just trans erroneous. Correct version is \_\_\_\_\_.  
 ZDT Following Transmitters running Dual.  
 \*ZDT Don't Transmit exercise messages until advised.  
 ZDV Your Dots Varying length, please remedy.  
 \*ZDV Private message received for \_\_\_\_\_. Advise.  
 \*ZDY No private messages until ordered.

- E -

\*ZEC Have you received message \_\_\_\_\_?  
 ZED Experiencing Drop-outs, 1-5.  
 ZEF We are Experiencing Fill-ins, 1-5.  
 ZEG We are Experiencing Garbles, 1-5.  
 \*ZEI Accuracy of heading doubtful.  
 \*ZEK No answer required.  
 \*ZEL This message is correction to \_\_\_\_\_.  
 \*ZEN This message is classified.  
 \*ZEP Parts marked ZEP coming later.  
 \*ZEU Exercise (drill message).

- F -

ZFA Failing Auto.  
 \*ZFA Message intercepted or copied blind.  
 ZFB SIGNALS ARE FADING BADLY.  
 \*ZFB Pass this message to \_\_\_\_\_.  
 ZFC Check your FSK shift, please.  
 ZFD Depth of Fading is as indicated, 1-5.  
 \*ZFD This message is a suspected duplicate.  
 \*ZFF Advise when message received by \_\_\_\_\_.  
 \*ZFH Message for (1) Action, (2) Info, (3) Comment.  
 \*ZFI Reply to message? There is no reply.  
 ZFK Revert to FSK.  
 ZFO SIGNALS FADED OUT.  
 ZFQ/x Frequency shift your signal is \_\_\_\_\_ cps.  
 ZFR Rapidity of Fading is as indicated, 1-5.  
 \*ZFR Cancel transmission \_\_\_\_\_.  
 ZFS Signals are Fading Slightly.

- G -

\*ZGB Send (Answer).  
 ZGF \_\_\_\_\_ signals Good For \_\_\_\_\_ wpm.  
 \*ZGF Make call signs more distinctly.  
 ZGP Please Give Priority.  
 ZGS YOUR SIGNALS GETTING STRONGER.  
 ZGW YOUR SIGNALS GETTING WEAKER.

- H -

ZHA How are conditions for Auto reception?  
 ZHC HOW ARE YOUR RECEIVING CONDITIONS?  
 ZHM/x Harmonic radiation from transmitter.  
 ZHS Send High Speed auto \_\_\_\_\_ wpm.  
 ZHY We are Holding Your \_\_\_\_\_.

- I -

ZIM Industrial or Medical interference, 1-5.  
 ZIP Increase Power.  
 ZIR You have strong Idle Radiation.  
 ZIS Atmospheric Interference, 1-5.

- J -

ZJF Frequency Jumping to degree indicated, 1-5.

- K -

\*ZKA Who is controlling station? or I am \_\_\_\_\_.  
 \*ZKB Permission necessary before transmitting msgs.  
 \*ZKD Take control of net \_\_\_\_\_ or shall I \_\_\_\_\_.  
 \*ZKE I (or \_\_\_\_\_) reports into circuit (net).  
 \*ZKF Station leaves net temporarily.  
 \*ZKJ Closing down (until \_\_\_\_\_).  
 ZKO REVERT TO ON/OFF KEYING.  
 ZKQ Say when ready to resume.  
 \*ZKS What Stations Keeping watch on \_\_\_\_\_?  
 ZKW Keying Weight is \_\_\_\_\_ (percent).

- L -

ZLB Give Long Breaks, please.  
 ZLD We are getting Long Dash from you.  
 ZLL Distorted LandLine control signals.  
 ZLP Low (minimum) Power.  
 ZLS WE ARE SUFFERING FROM LIGHTNING STORM.

- M -

ZMG Magnetic activity.  
 ZMO STAND BY MOMENT.  
 ZMP MisPunch or Perforator failures.  
 ZMQ Stand by for \_\_\_\_\_.  
 ZMU/x Multipath making \_\_\_\_\_ mark bias.

- N -

ZNB No Breaks, we send twice.  
 \*ZNB Authentication is \_\_\_\_\_.  
 ZNC NO COMMUNICATIONS WITH \_\_\_\_\_.  
 \*ZNC All stations authenticate.  
 \*ZND You are misusing authenticator.  
 ZNG Receiving conditions No Good for code.  
 ZNI NO CALL LETTERS (IDENTIFICATION) HEARD.  
 ZNN ALL CLEAR OF TRAFFIC.  
 ZNO Not On the air.  
 ZNR Not Received.  
 ZNS Here New Slip.

- O -

ZOA Have checked (call-letters) \_\_\_\_\_ OK.  
 \*ZOC Relay to your sub-stations.  
 ZOD Observing \_\_\_\_\_ will transfer when better.  
 \*ZOD Act as radio link between me and \_\_\_\_\_.  
 \*ZOE Can you accept message? (or) Give me message.  
 ZOF Relay this message.  
 \*ZOG Transmit your message (give info.).  
 ZOH What traffic have you On Hand?  
 ZOK WE ARE RECEIVING OK.  
 \*ZOK Relay this message via \_\_\_\_\_.  
 ZOL OK. On Line.  
 \*ZOM Mail delivery permissible.  
 ZOR Transmit Only Reversals.  
 \*ZOU Give instructions for routing traffic.  
 \*ZOZ Obtain retransmission of message \_\_\_\_\_.

- P -

ZPA Printer line Advance not received.  
 \*ZPA Your speech distorted.  
 ZPC Printer Carriage-return not received.  
 \*ZPC Signals fading, 1-5.  
 ZPE Punch Everything.  
 ZPF Printer motor Fast.  
 ZPO Send Plain Once.  
 ZPP Punch Plain only.  
 ZPR Rerun slip at Present Running.  
 ZPS Printer motor Slow.  
 ZPT Send Plain Twice.

- R -

ZRA Reverse Auto tape.  
 \*ZRA Mr frequency OK? Your frequency is \_\_\_\_\_.  
 ZRBelayed signal Bad, adjust receiver.  
 \*ZRB Check your frequency on this circuit.  
 ZRC Can you Receive Code?  
 \*ZRC Shall I, or tune your transmitter to \_\_\_\_\_.  
 \*ZRE Hear you best on (kcs).  
 \*ZRF Send tuning signals on present frequency.  
 ZRK Reversed Keying.  
 ZRL Rerun slip before one now running.  
 ZRM Please Remove Modulation from \_\_\_\_\_.  
 \*ZRM I receive (usb, lsb, isb's)  
 ZRN ROUGH NOTE.  
 ZRO ARE YOU RECEIVING OK?  
 ZRR Run Reversals.  
 ZRS Rerun message No. \_\_\_\_\_.  
 ZRT Revert to Traffic.  
 ZRY Run test slip, please.

- S -

ZSF SEND FASTER.  
 ZSH STATIC HEAVY HERE.  
 ZSI/x Please furnish Signal Intensity.  
 ZSM/x Microvolt input to receiver is \_\_\_\_\_.  
 ZSN Give SINPO report on \_\_\_\_\_  
 S Signal strength.  
 I Interference.  
 N Noise.  
 P Propagation.  
 O Overall readability.

ZSO Transmit Slips Once.  
 ZSR YOUR SIGNALS STRONG & READABLE.  
 ZSS Send Slower.  
 ZST Transmit Slips Twice.  
 ZSU YOUR SIGNALS ARE UNREADABLE.  
 ZSV Your Speed Varying.

- T -

ZTA Transmit by Auto.  
 ZTH Transmit by Hand.  
 ZTI Transmission temporarily Interrupted.

- U -

ZUA Conditions Unsuitable for Automatic recording.  
 \*ZUA Timing signal will be transmitted.  
 ZUB WE HAVE BEEN UNABLE TO BREAK YOU.  
 ZUC UNABLE TO COMPLY. WILL DO SO AT \_\_\_\_\_.  
 \*ZUE Affirmative (Yes).  
 \*ZUG Negative (No).  
 \*ZUH Unable to comply.  
 \*ZUW Wait. Stand by.

- V -

ZVB Varying Bias.  
 ZVF Signals Varying in Frequency.  
 ZVP Send V's Please.  
 \*ZVR Pass at once to sub-stations.  
 ZVS Signals Varying in intensity.

- W -

\*ZWB Name of operator on watch.  
 ZWC Wipers or Clicks here.  
 ZWO SEND WORDS ONCE.  
 ZWR YOUR SIGNALS WEAK BUT READABLE.  
 ZWS Wavelength (frequency) is Swinging, 1-5.  
 ZWT SEND WORDS TWICE.

- Y -

ZYS WHAT IS YOUR SPEED OF TRANSMISSION?  
 - Z -  
 \*ZZF Incorrect.  
 \*ZZG You are correct.  
 \*ZZH TRY AGAIN.

## MULTIPLEX

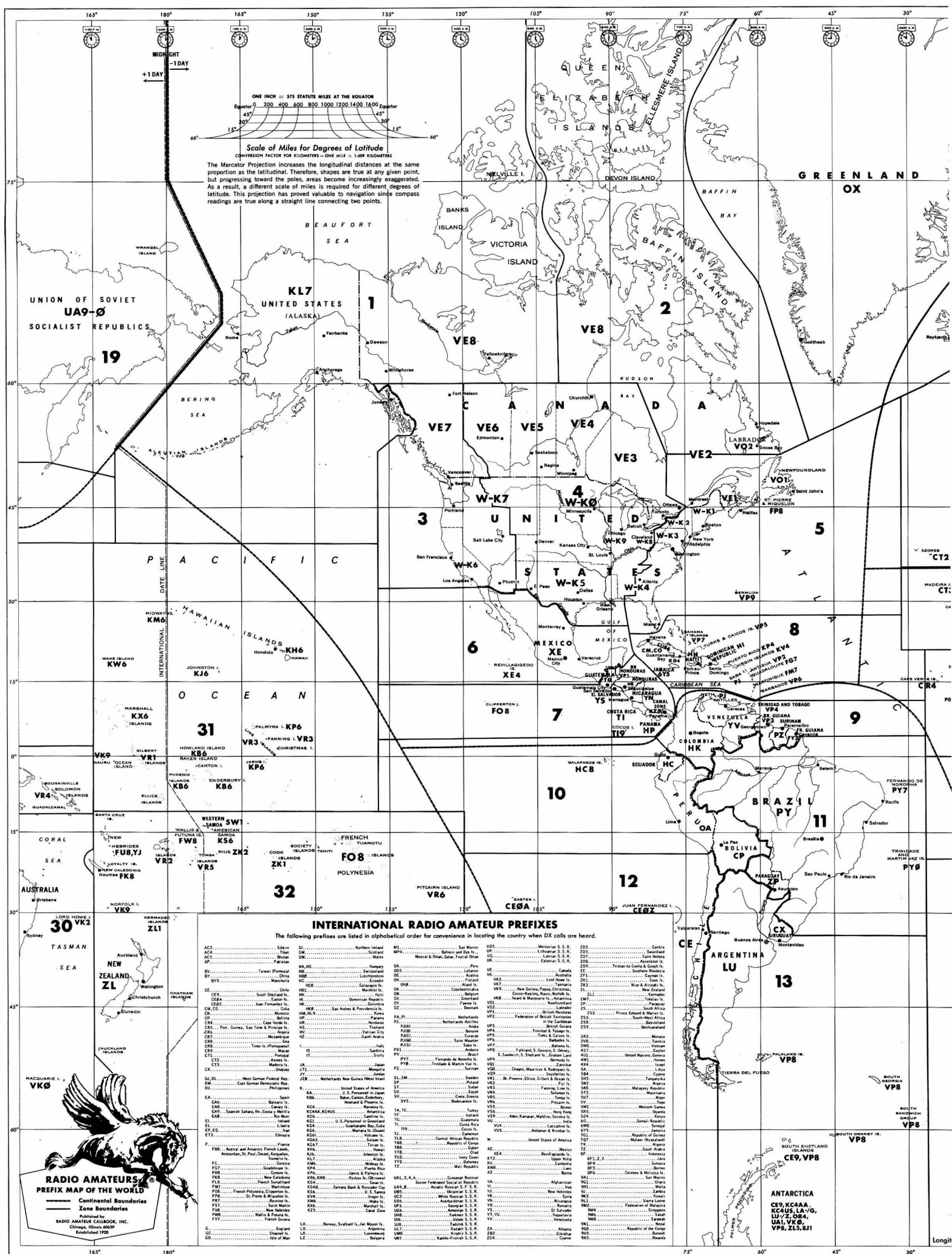
ZYA Cease traffic; send A's on A channel.  
 ZYC Cycling on ARQ, errors stored your end.  
 ZYK Check Your Keying on channel \_\_\_\_\_.  
 ZYM Change from single printer to Multiplex.  
 ZYN Make bias Neutral.  
 ZYP Change from multiplex to single Printer.  
 ZYR Please put \_\_\_\_\_ on MUX revolutions.  
 ZYT Check Your Thyratrons.  
 ZYX/x Revert to MUX frames \_\_\_\_\_ channels.

## RADIOPHOTO AND FACSIMILE

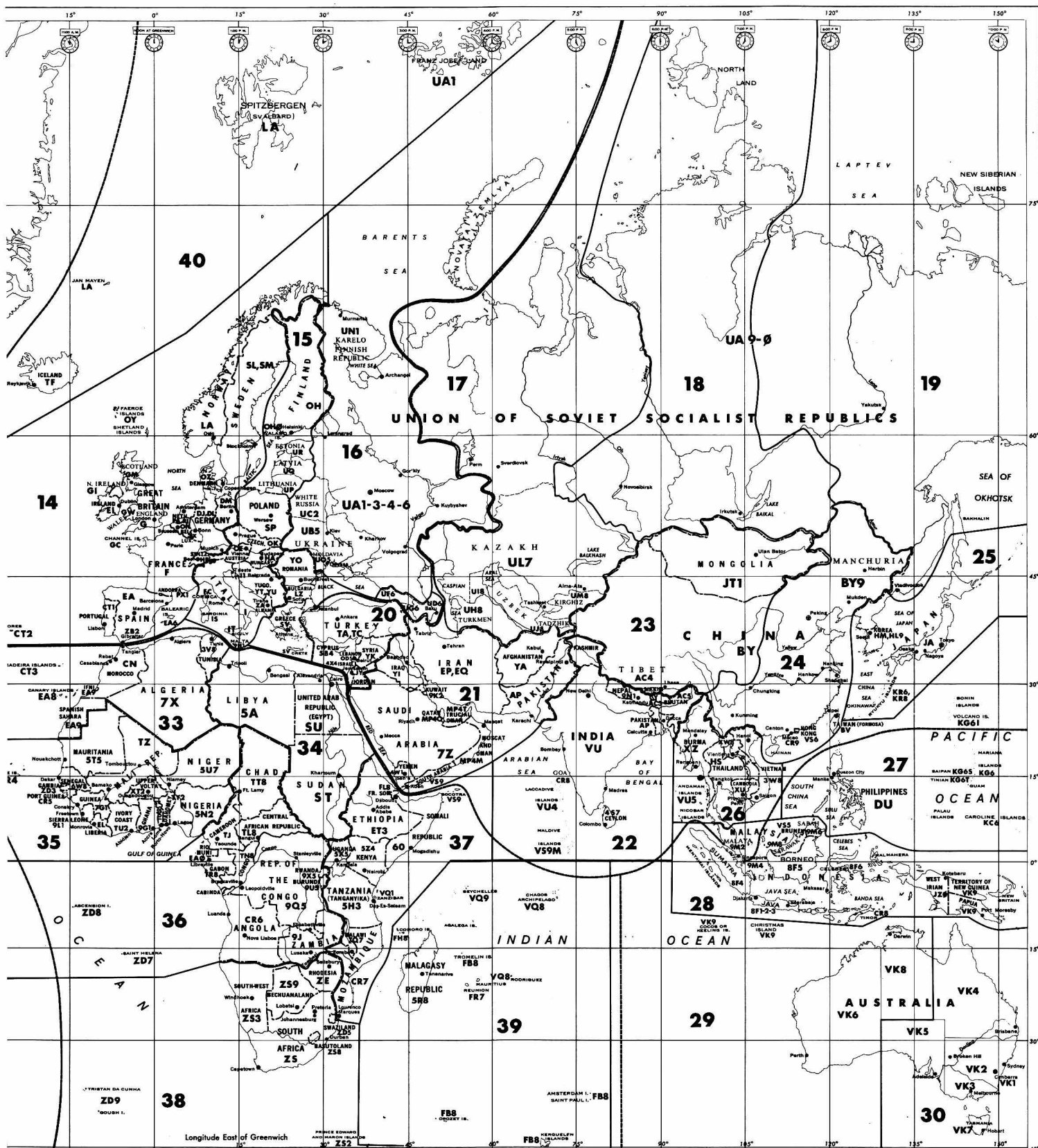
ZXA Adjust to receive speeds \_\_\_\_\_.  
 ZXC Pix \_\_\_\_\_ Conditionally accepted.  
 ZXD Send Dashes, please.  
 ZXF You are Floating Fast.  
 ZXH Limits High, reduce \_\_\_\_\_ cycles.  
 ZXJ You are Jumping out of phase.  
 Z XK Is your synchronizing correct?  
 ZXL Limits are Low, increase \_\_\_\_\_ cycles.  
 ZXO Last run defaced due to \_\_\_\_\_.  
 ZXP Go ahead with Pix.  
 ZXS You are floating Slow.  
 ZXV Your modulation is Varying.

Sources: Cable and Wireless Ltd.  
 U. S. Army Communications Manual SIG 439-2.  
 ACP-131 (A), Allied Comms. Procedures.  
 W3AFM





# MAP OF THE WORLD



## PREFIXES-BY COUNTRIES

The following countries listed in alphabetical order by country show international radio amateur prefixes. Characters in ( ) designate the continent and zone in which the country is located. Abbreviations are as follows: A—Africa, E—Europe, M—North America, O—Oceania, S—South America.

Algeria (A-21) V9	Canada (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Albania (A-21) VA	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9
Algeria (A-21) V9	Cameroon (A-26) RU	Dominican Republic (O-20) SV5	Guatemala (A-25) V9

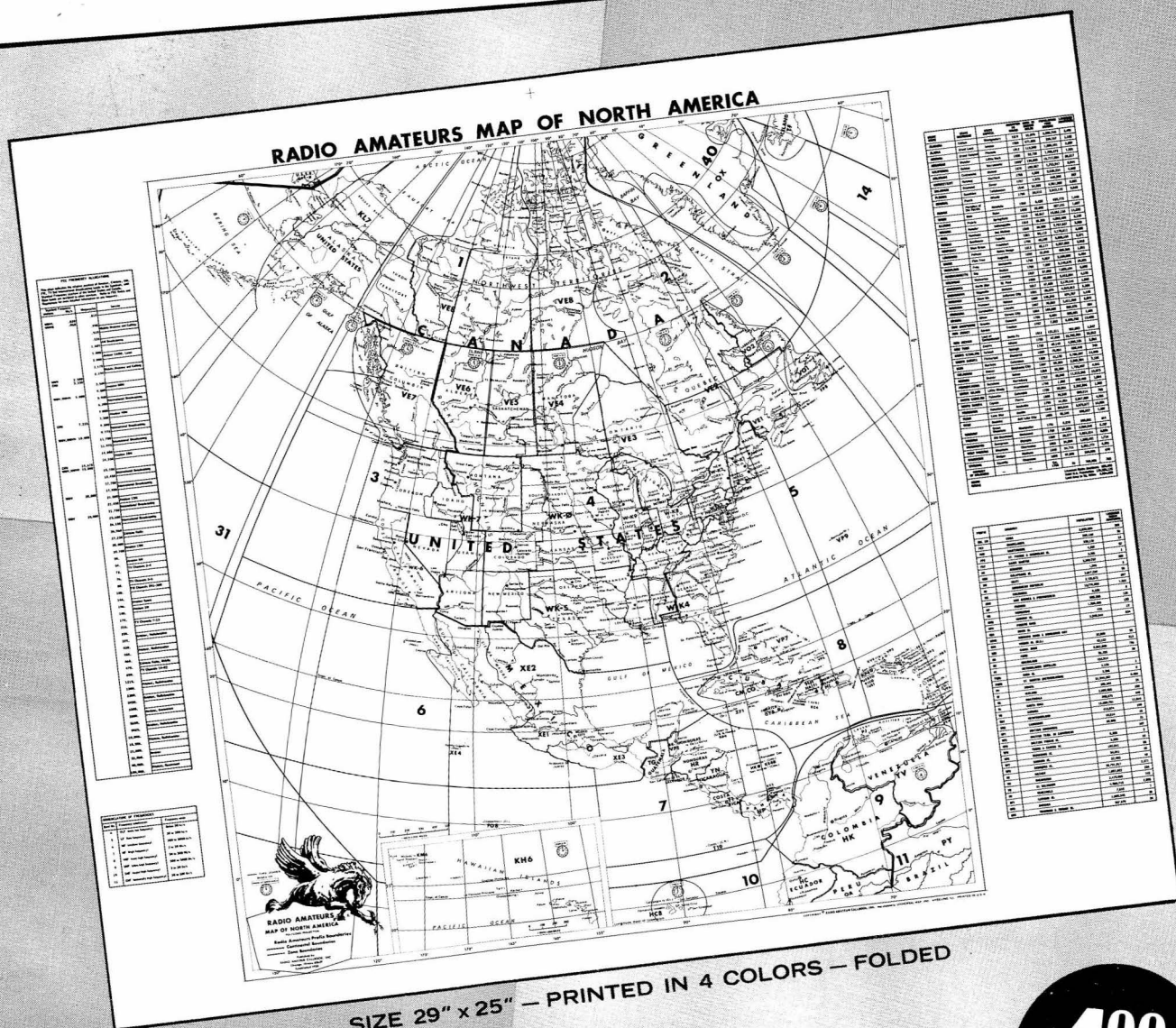
Longitude West of Greenwich



# INTERNATIONAL "Q" SIGNALS

Abbreviation	Question	Answer or Advice	Abbreviation	Question	Answer or Advice
QRA	What is the name of your station?	The name of my stations is . . .	QSX	Will you listen to . . . [call sign(s)] on . . . kc/s (or Mc/s)?	I am listening to . . . [call sign(s)] on . . . kc/s (or Mc/s).
QRB	How far approximately are you from my station?	The approximate distance between our stations is . . . nautical miles (or kilometres)	QSY	Shall I change to transmission on another frequency?	Change to transmission on another frequency [or on . . . kc/s (or Mc/s)].
QRD	Where are you bound and where are you from?	I am bound for . . . from . . .	QSZ	Shall I send each word or group more than once?	Send each word or group twice (or . . . times).
QRG	Will you tell me my exact frequency or that of . . .)?	Your exact frequency (or that of . . . is . . . kc/s (or Mc/s).	QTA	Shall I cancel telegram number . . . as if it had not been sent?	Cancel telegram number . . . as if it had not been sent.
QRH	Does my frequency vary?	Your frequency varies.	QTB	Do you agree with my counting of words?	I do not agree with your counting of words; I will repeat the first letter or digit of each word or group.
QRI	How is the tone of my transmission?	The tone of your transmission is . . . (1. Good; 2. Variable; 3. Bad).	QTC	How many telegrams have you to send?	I have . . . telegrams for you (or for . . .).
QRK	What is the readability of my signals (or those of . . .)?	The readability of your signals (or those of . . .) is . . . (1. Unreadable; 2. Readable now and then; 3. Readable, but with difficulty; 4. Readable; 5. Perfectly readable).	QTE	What is my TRUE bearing from you?  What is my TRUE bearing from . . . (call sign)?	Your TRUE bearing from me is . . . degrees (at . . . hours)  Your TRUE bearing from . . . (call sign) was . . . degrees (at . . . hours)
QRL	Are you busy?	I am busy (or I am busy with . . .). Please do not interfere.	QTH	What is the TRUE bearing of . . . (call sign) from . . . (call sign)?	The TRUE bearing of . . . (call sign) from . . . (call sign) was . . . degrees (at . . . hours).
QRM	Are you being interfered with?	I am being interfered with.	QTI	Will you send two dashes of ten seconds each followed by your call sign (repeated . . . times) [on . . . kc/s (or Mc/s)]?	I am going to send two dashes of ten seconds each followed by my call sign (repeated . . . times) [on . . . kc/s (or Mc/s)]
QRN	Are you troubled by static?	I am troubled by static.	QTP	Will you request . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s)?	I have requested . . . to send two dashes of ten seconds followed by his call sign (repeated . . . times) on . . . kc/s (or Mc/s).
QRO	Shall I increase power?	Increase power.	QTH	What is your position in latitude and longitude (or according to any other indication)?	My position is . . . latitude . . . longitude (or according to any other indication).
QRP	Shall I decrease power?	Decrease power.	QTI	What is your TRUE track?	My TRUE track is . . . degrees.
QRQ	Shall I send faster?	Send faster (. . . words per minute).	QTI	What is your speed?	My speed is . . . knots (or kilometres per hour).
QRR	Are you ready for automatic operation?	I am ready for automatic operation. Send at . . . words per minute.	QTL	What is your TRUE heading?	My TRUE heading is . . . degrees.
QRS	Shall I send more slowly?	Send more slowly (. . . words per minute).	QTN	At what time did you depart from . . . (place)?	I departed from . . . (place) at . . . hours.
QRT	Shall I stop sending?	Stop sending.	QTO	Have you left dock (or port)?	I have left dock (or port)
QRU	Have you anything for me?	I have nothing for you.	QTP	Are you airborne?	I am airborne.
QRV	Are you ready?	I am ready.	QTP	Are you going to enter dock (or port)?	I am going to enter dock (or port)
QRW	Shall I inform . . . that you are calling him on . . . kc/s (or Mc/s).	Please inform . . . that I am calling him on . . . kc/s (or Mc/s).	QTP	Are you going to alight (or land)?	I am going to alight (or land).
QRX	When will you call me again?	I will call you again at . . . hours [on . . . kc/s (or Mc/s)].	QTT	Can you communicate with my station by means of the International Code of Signals?	I am going to communicate with your station by means of the International Code of Signals.
QRY	What is my turn?	Your turn is Number . . . (Relates to communication.)	QTR	What is the correct time?	The correct time is . . . hours.
QRZ	Who is calling me?	You are being called by . . . [on . . . kc/s (or Mc/s)].	QTS	Will you send your call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that your frequency may be measured?	I will send my call sign for . . . minute(s) now (or at . . . hours) [on . . . kc/s (or Mc/s)] so that my frequency may be measured.
QSA	What is the strength of my signals (or those of . . .)?	The strength of your signals (or those of . . .) is . . . (1. Scarcely perceptible; 2. Weak; 3. Fairly good; 4. Good; 5. Very good).	QTT	What are the hours during which your station is open?	My station is open from . . . to . . . hours.
QSB	Are my signals fading?	Your signals are fading.	QTV	Shall I stand guard for you on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours)?	Stand guard for me on the frequency of . . . kc/s (or Mc/s) (from . . . to . . . hours).
QSD	Is my keying defective?	Your keying is defective.	QTX	Will you keep your station open for further communication with me until further notice (or until . . . hours)?	I will keep my station open for further communication with you until further notice (or until . . . hours).
QSG	Shall I send . . . telegrams at a time?	Send . . . telegrams at a time.	QUA	Have you news of . . . (call sign)?	Here is news of . . . (call sign).
QSI	What is the charge to be collected per word to . . . including your internal telegraph charge?	The charge to be collected per word to . . . including my internal telegraph charge is . . . francs.	QUB	Can you give me, in the following order, information concerning: visibility, height of clouds, direction and velocity of ground wind at . . . (place of observation)?	Here is the information requested . . .
QSK	Can you hear me between your signals?	I can hear you between my signals.	QUC	What is the number (or other indication) of the last message you received from me [or from (call sign)]?	The number (or other indication) of the last message I received from you [or from . . . (call sign)] is . . .
QSL	Can you acknowledge receipt?	I am acknowledging receipt.	QUD	Have you received the urgency signal sent by . . . (call sign of mobile station)?	I have received the urgency signal sent by . . . (call sign of mobile station) at . . . hours.
QSM	Shall I repeat the last telegram which I sent you, or some previous telegram?	Repeat the last telegram which you sent me [or telegram(s) number(s) . . .].	QUF	Have you received the distress signal sent by . . . (call sign of mobile station)?	I have received the distress signal sent by . . . (call sign of mobile station) at . . . hours.
QSN	Did you hear me [or . . . (call sign)] on . . . kc/s (or Mc/s)?	I did hear you [or . . . (call sign)] on . . . kc/s (or Mc/s).	QUG	Will you be forced to alight (or land)?	I am forced to alight (or land immediately.
QSO	Can you communicate with . . . direct or by relay?	I can communicate with . . . direct (or by relay through . . .).	QUH	Will you give me the present barometric pressure at sea level?	I shall be forced to alight (or land) at . . . (position or place). The present barometric pressure at sea level is . . . (units).
QSP	Will you relay to . . . free of charge?	I will relay to . . . free of charge.			
QSQ	Have you a doctor on board [or is . . . (name of person) on board]?	I have a doctor on board [or . . . name of person) is on board].			
QSU	Shall I send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .)?	Send or reply on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .).			
QSV	Shall I send a series of V's on this frequency [or . . . kc/s (or Mc/s)]?	Send a series of V's on this frequency [or . . . kc/s (or Mc/s)].			
QSW	Will you send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .)?	I am going to send on this frequency [or on . . . kc/s (or Mc/s)] (with emissions of class . . .).			

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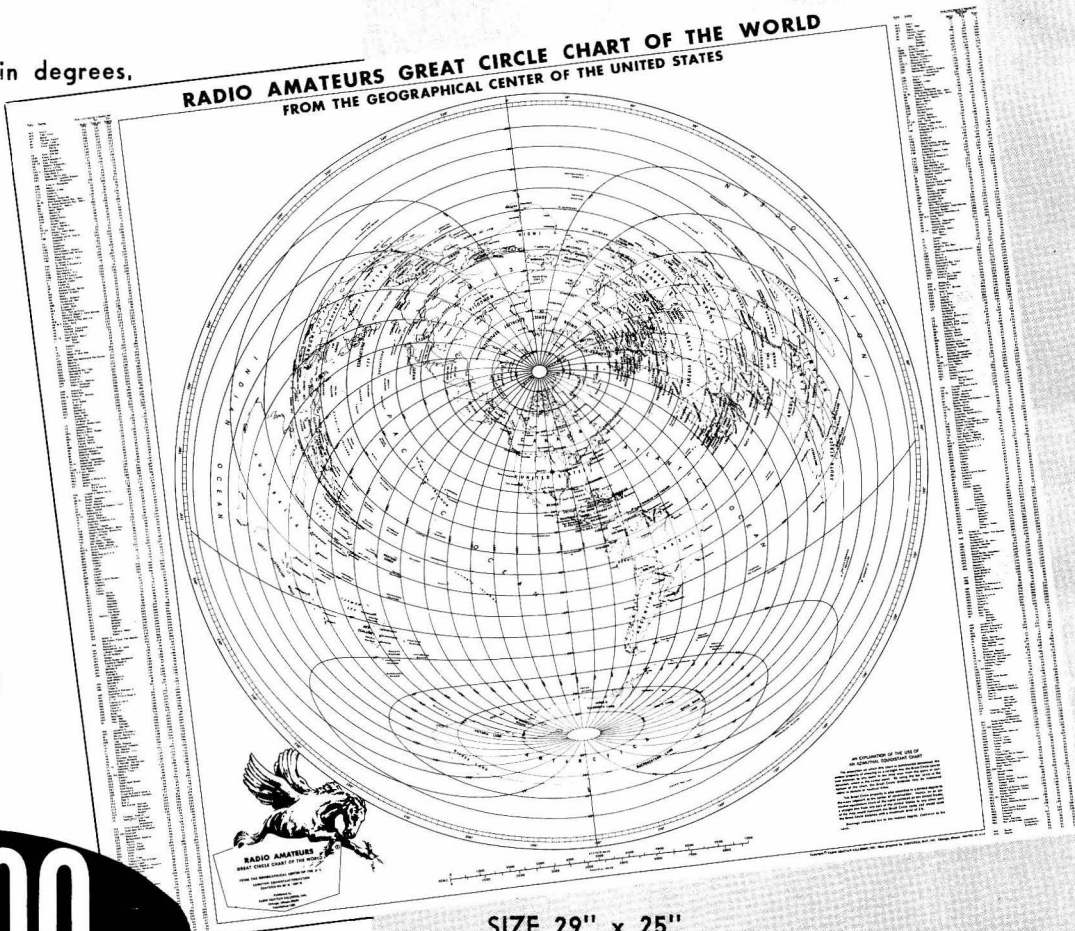
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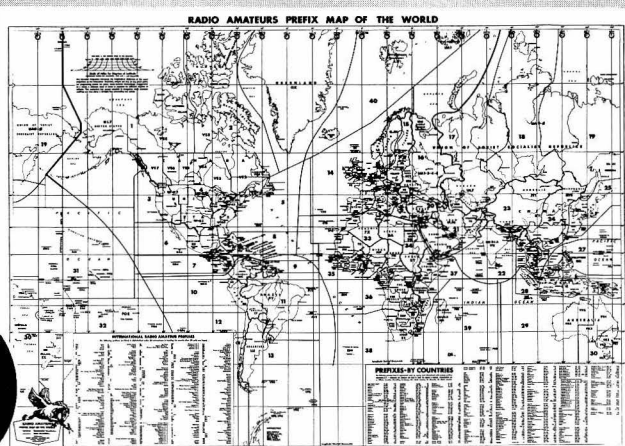
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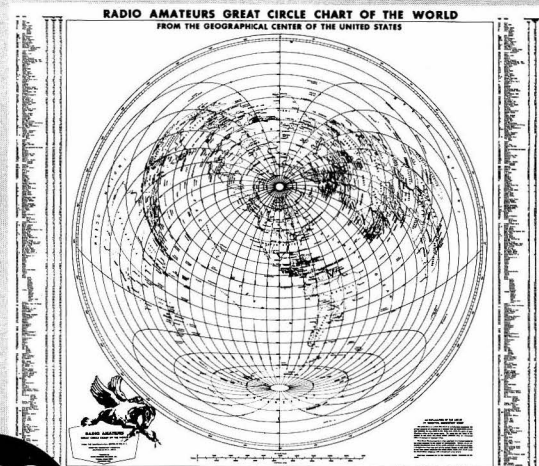
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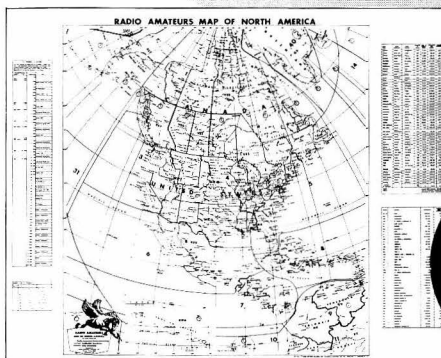
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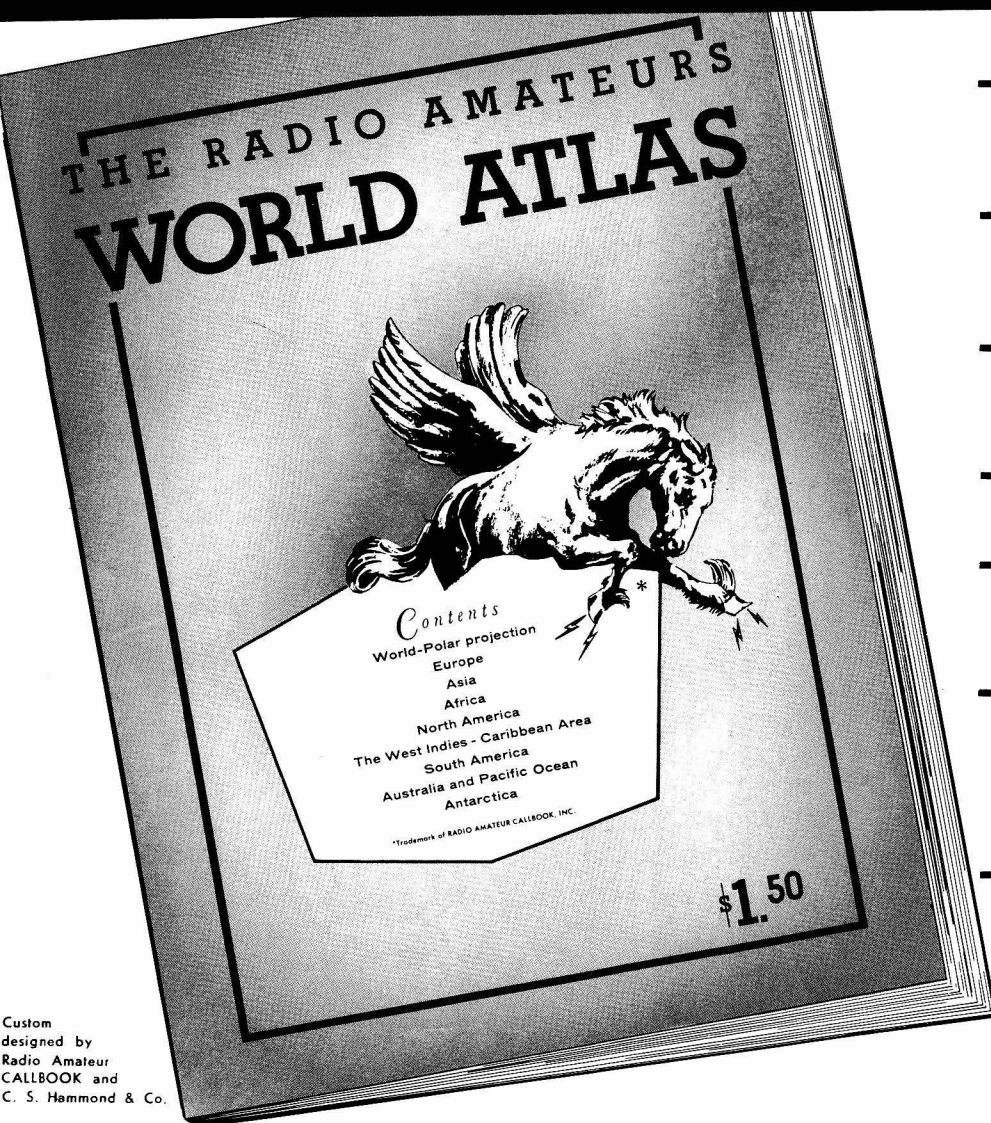
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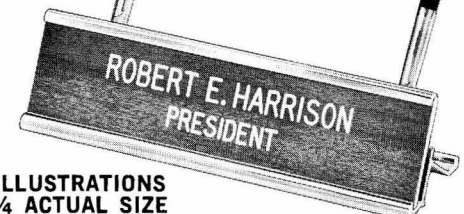
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<input type="checkbox"/> Door or rig	<input type="checkbox"/> Walnut Grained <input type="checkbox"/> Jet Black	<input type="checkbox"/> All letters same size <input type="checkbox"/> Large letters over small <input type="checkbox"/> Small letters over large	<input type="checkbox"/> 1"x4" <input type="checkbox"/> 1"x7" <input type="checkbox"/> 2"x8"	
<input type="checkbox"/> Exec. Desk Set	<input type="checkbox"/> Walnut Grained <input type="checkbox"/> Jet Black	<input type="checkbox"/> All letters same size <input type="checkbox"/> Large letters over small <input type="checkbox"/> Small letters over large		<input type="checkbox"/> Gold <input type="checkbox"/> Silver
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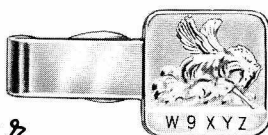
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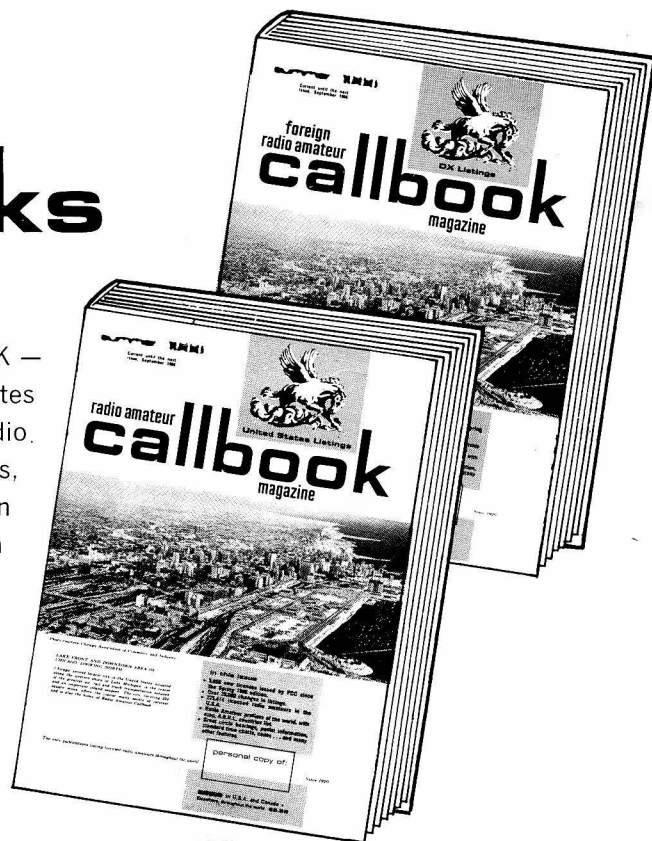


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19 _____	19 _____	19 _____	19 _____
( ) Spring	( ) Spring	( ) Spring	( ) Spring
( ) Summer	( ) Summer	( ) Summer	( ) Summer
( ) Fall	( ) Fall	( ) Fall	( ) Fall
( ) Winter	( ) Winter	( ) Winter	( ) Winter

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